THE PROFESSIONAL GEOGRAPHER

The Journal of The Association of
American Geographers

EVELYN L. PRUITT, Editor

Volume X MAY 1958 Number 3

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THE AIRCRAFT INDUSTRY IN THE UNITED STATES AND THE USSR

Herbert J. Vent and Robert B. Monier
Air University, Maxwell Air Force Base

The aircraft industry within but a few years has become one of the foremost industries of the United States. Its growth has been most spectacular in times of war or international tension because the military establishment is the principal market for aircraft. During World War II production reached a peak of nearly 100,000 planes; current annual production is 14,000. However, this comparison of numbers of planes produced only in part reflects the present magnitude of the industry, since the value of the output is two-thirds as great as it was during the World War II production peak.

Some aspects of adolescence still characterize the aircraft industry. It is continuing to expand into new plants. This expansion is especially significant as numerous, well-established plants phase over into missile production. Missile manufacture is resulting in acquisition of property in deserts and other relatively isolated areas. This contrasts with property considerations in regard to the fabrication of conventional aircraft. Another youthful aspect of the industry is the gradual emergence of a few large firms and the disappearance of the smaller ones. Finally, the aircraft industry continues to search for a steady civilian market for its product in order to divorce itself from a prosperity which is too closely tied to the vagaries of international politics.

Aircraft plants are located in widely scattered parts of the United States. (See Figure 1.) Since some of the aircraft factories lie outside the industrial core, an examination of the location factors seems in order.

Based upon the type of work done, there are four groups of plants or factories engaged in the aircraft industry. They are (1) airframe plants, (2) engine factories, (3) propeller factories, and (4) equipment making plants. Traditional location factors have been relatively unimportant in this industry because of the light weight of its raw materials, mobility of the completed airplane, and the government subsidy of the industry in conjunction with a major emphasis on skilled labor pools necessary for the complex manufacturing processes. Nevertheless, some locational pattern is discernable. Southern California leads in airframe production; and the East, with its heavy metals know-how, leads in engine production. Generally, all four groups of factories are not found in a single area. Components thus must be gathered from widely scattered geographic regions for final assembly.

The need for a pool of highly skilled labor, with technical competence for operation of the complex machinery and complicated hand assemblies, together with large numbers of engineers, draftsmen and researchers, is one of the major considerations in locating an aircraft manufacturing plant.

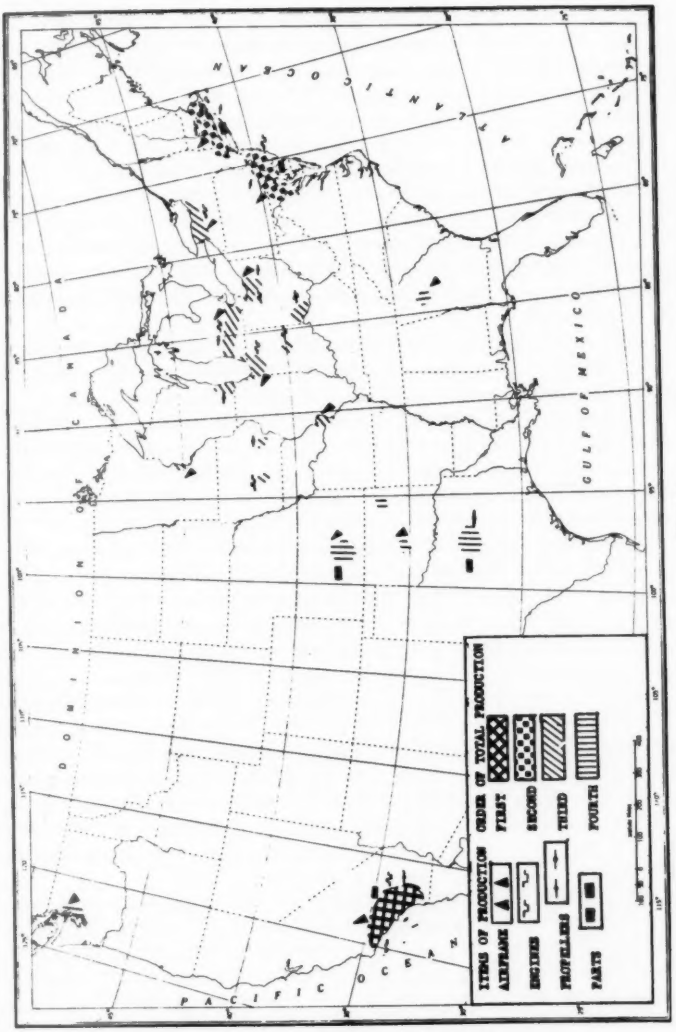

AIRCRAFT INDUSTRY IN THE UNITED STATES
ITEMS OF PRODUCTION
AIRFRAME
ENGINES
PROPELLERS
PARTS
ORDER OF TOTAL PRODUCTION
FIRST
SECOND
THIRD
FOURTH
DOMINION OF CANADA
GULF OF MEXICO
PACIFIC OCEAN

Figure 1

The plants are usually located near or adjacent to large centers of population despite the necessarily high costs. These costs must be reflected in the final product, the airplane.

Climate is another major factor in the location of aircraft plants when political or strategic considerations are not over-riding. A warm, dry climate, such as that of Southern California, is most desirable. In that climate, year-round flight testing is possible, storage of parts out-of-doors is feasible, heating requirements for the hangar-type buildings are minimized, and outdoor work is possible throughout the year. These factors all tend to lower aircraft production costs.

Taxation is another consideration in plant location. Because of high taxes on metropolitan property, and the high unit value of such property, aircraft industry generally locates on the peripheries of metropolitan districts to reduce as much as possible the overhead costs of maintaining a large industrial plant. For example, the Southern California plants are located at Inglewood, Hawthorne, Long Beach, Santa Monica, and at other cities adjacent to the labor supply of Los Angeles, but none of them are in Los Angeles.

Nearness to military proving grounds and training sites is yet another location factor. Texas and California are both well endowed with air bases and are also the two leading states in the aircraft industry.

Sources of raw materials, transportation facilities, and power sources appear to exert little influence on the precise location of aircraft factories in the United States. This is in direct contradistinction to most heavy industries which are located near power sources first of all, and also in propinquity to basic resources, harbors, railroads and markets.

In analysing the economic geography of the aircraft industry, the specifically economic factors as well as the primarily geographic factors of location and plant distribution must be considered. The principal economic aspects, primarily with technological overtones, pertain to the method of production, design function, manufacturing processes, tooling and equipment, precision machining, and the sub-assembly system.

Aircraft manufacturing is intermediate between the mass production methods of the automobile industry and the "tailor made" specifications of the ship building industry. Mass production techniques are retarded by the huge size of airplanes, small number produced of some models, great variety of models, fast-changing designs, restricted market, and sporadic production. During the periods of extremely high output, mass production methods have been used with some success. This occurred during the latter years of World War II.

The function of designing is very important in manufacturing airplanes. Special purpose characteristics of planes and rapid technological progress in the industry practically preclude standardization. Designing, plus developmental and testing work which follow, involves large quantities of high-salaried labor. The costs of these preliminary phases are prorated, as a rule, over a few operating models. For these reasons, total unit costs for aircraft run high. Complicated planes of today require several years

from the drawing boards to the operational stage. This time lag becomes greater as planes become more and more complex.

The manufacturing processes are similar to those of other metal fabricating industries. Component parts are produced by numerous independent suppliers from many facets of the American industrial economy. This is typical of the so-called non-integrated manufacturer, a concern producing both aircraft and other kinds of parts. However, there are a few integrated types of manufacturers. These have all the manufacturing facilities, including a combination of subsidiary companies, allowing them to make a complete plane. United Aircraft and Curtiss-Wright Corporation are examples of this type.

Aircraft industries are much more dependent upon multi-purpose tools and equipment than are mass-producing industries. This provides some greater degree of flexibility in the types of parts that can be produced by the machines and also flexibility in the number of models that can be produced without retooling. Also, it allows the manufacturer to meet more adequately the exigencies of a rapidly changing technology and the requirements for precision. However, the complex equipment requires highly skilled and highly paid workmen to an extent not encountered in mass production industries, and this greatly increases unit costs of aircraft.

Precision machining is absolutely necessary in the aircraft industry. This requires the use of the most advanced techniques for discerning both internal and external imperfections. Highly skilled workmen and expensive equipment are required for the inspection phase of production. Although this assures required high performance in the finished product, it also increases the unit cost.

The aircraft industry uses the sub-assembly system as does the automobile industry. Unit assemblies move from work station to work station, of which there may be a score. The line remains stationary for varying periods of time while workers complete unit assemblies and sub-assemblies on each airframe, utilizing much hand labor in these processes. A distinguishing characteristic of the aircraft assembly line is its intermittent movement compared to the continual movement in mass production industries.

These economic considerations are universals, since they largely apply to the aircraft industry everywhere, including the communist countries.

Development of the Russian aircraft industry, at least so far as the outside world became aware, began shortly after the close of World War II. Actual industrial development leading to the current status began around 1928. Foreign scientists and engineers played an important role, particularly the Germans who were brought into Russian industry and are still being used. At the close of World War II, thousands of German technicians, scientists, and skilled workers were pressed into industrial service and research. Some were permitted to remain in East Germany while others were relocated in Russia. Foreign scientists and the products provided to the Soviets in the form of lend-lease and British aid assisted the Russians in making the rapid progress in technology so evident today. The Russians themselves were adept at improving the state of their aero-

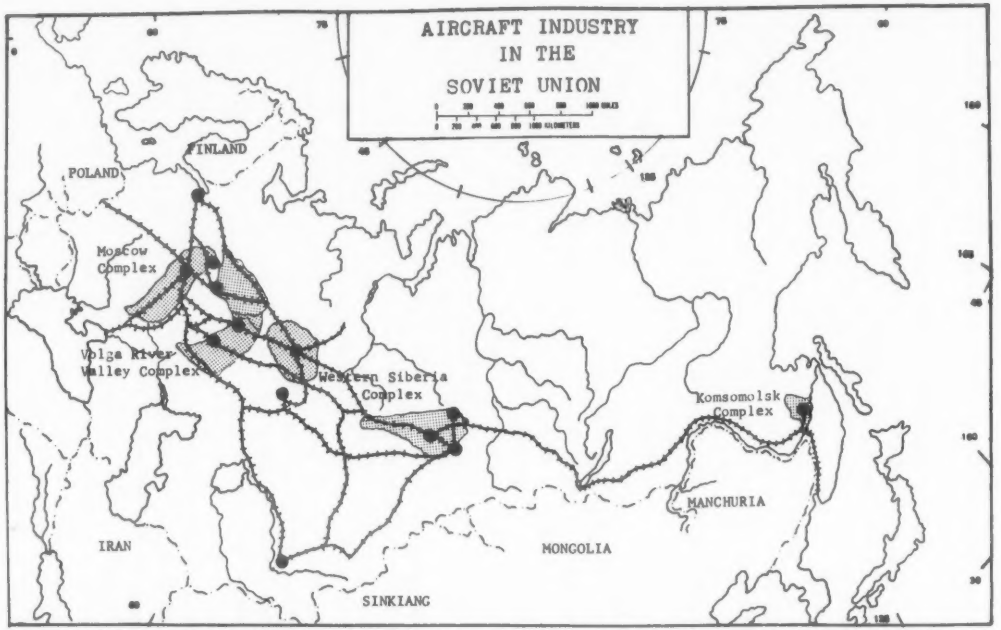


Figure 2. The principal railroads and feeder lines important to the location of the Soviet Union's aircraft industry are shown. Railroads leading to the Sea of Azov and to the integrated economies of the European satellites of the U.S.S.R. are also indicated since these areas supply many of the aircraft parts needed by the major airplane factories. The Western Siberian region is shown divided into two parts, the Urals and the Kuznetsk Basin, because of the great distance between them and because of but slight industrialization in the intervening area.

nautical art by imitating ideas obtained from foreign sources, coming up with improvements, and using their own innovations.

By the time the Russians felt themselves able to get rid of their foreign assistance, their aircraft industry had reached considerable proportions. Beginning in 1950, the Russians demonstrated to the world that they had built the foundation for a mighty aircraft industry.

Their industrial complexes are located in four principal areas. These are (1) the Volga River Valley, (2) the Moscow area, (3) the Kuznetsk Basin in Western Siberia, and (4) the Komsomolsk region in Eastern Siberia. (See Figure 2.) All of these are also important industrial areas for many types of manufactured goods other than aircraft. The World War II period witnessed much dispersal of the Russian aircraft industry to points in the Urals and the Kuznetsk Basin. Nevertheless, important aircraft industry remains in European Russia.

Location of a skilled labor force posed no serious handicap for the Russian aircraft industry. State control over individual movements made it possible to simply relocate the required workers. Nor has climate been a major consideration in development of its aircraft industry. Had climate been important, Russian plane production would be confined largely to its southernmost areas where there are some mild climates.

The major factors dictating location of the Russian aircraft factories are resources and transportation, plus strategic factors to a lesser extent. Most of the industry is located in areas served by the Trans-Siberian Railroad and associated networks. Russia's four centers of aircraft production were established in places that had already assumed considerable importance as manufacturing centers, whereas this was not necessarily the case with American centers of airplane production, particularly in airframe manufacturing. Addition of the aircraft industry placed heavy labor and raw material requirements upon these industrialized regions. The labor situation was solved by forcing large numbers of technicians to come to these sites.

The aircraft industry of the U.S.S.R. is supported by the government, whereas it is a product of free enterprise in the United States. Totalitarian control has undoubtedly been a factor in the rapid development of the Soviet aircraft industry.

The U.S.S.R. has become a leader in aeronautical engineering and aircraft production. Russian plane output reached a high of 56,000 in 1944 and was 23,600 in 1952. The 1952 figure was considerably above the 14,000 previously cited as the current one for the United States.

It seems clear that the United States and the U.S.S.R. will continue their positions as leaders in aircraft production. Only these two countries have the resources of raw materials, skilled labor, and capital equipment required for the newly emerging version of the aircraft industry. Within the past year, for example, Great Britain has largely withdrawn from specialized military aircraft production and is concentrating its resources upon missile production.

Location of aircraft production facilities in both the United States and the U.S.S.R. has assumed definite locational patterns, each with its pe-

culiar criteria for location. In the United States, it is dictated by climate, skilled labor pools, and basic economic conditions. In the Soviet Union, resources, transportation, and political considerations are more significant. Progress in missile production will present new and additional locational requirements, especially for the research and testing aspects. Open spaces such as deserts, tundra, and possibly the Antarctic ice cap will become increasingly important to the industry.

SHOULD OUR ICBM LAUNCHING SITES BE LOCATED OUTSIDE THE U.S.?

David H. Reeher

Should Intercontinental Ballistic Missiles, our primary strategic weapon system of the near future, be based outside the United States? This provocative question poses one of the most interesting problems in the field of military geography today, and perhaps one of the most significant.

Present concern over apparent Soviet capabilities in the field of long range ballistic missiles and in turn our ability to deter an enemy blitz or to survive one and retaliate has stirred up considerable interest in missile basing strategies. When questioned about these strategies, nearly everyone indicates a preference for an ICBM base system which incorporates internal base sites only, i.e., one contained entirely within the U. S. proper and thus completely independent of foreign areas.

This choice is obviously governed by such prominent considerations as local base security, need for a central and reliable operational control network, air defense requirements, logistical and support requirements, maintenance problems, costs in terms of dollars and time, and the general desire to eliminate the numerous miscellaneous problems and headaches associated with overseas basing. The acceptance of an internal base pattern for delivery of ICBM nuclear weapons could mean the revival of the "Fortress America" concept. At times, the soundness of this military concept has been questioned since it appears to combine, in a broad sense, the principal military, economic, population and governmental control strengths of the U. S. into one geographic region. This does not infer compactness or lack of dispersal within the U. S. Rather it notes the relative smallness of the area of missile concentration in terms of world geography.

There are other possible broad geographic schemes for basing ICBM's. One of these designs, which appears to be most interesting, is external basing. Along with tremendous speed and a powerful warhead, a salient feature of the ICBM is its intercontinental range. In our attempts to deal with the Soviet Union, the availability of such a missile system essentially provides our top-most security planners with a revitalized geographic strategy in terms of weapon system employment. Range-wise, our launching sites can be scattered in remote, barren regions of the world, physically removed from both the U. S. and the USSR but yet located so as to

encircle the Soviet Bloc. However, in fact it appears that this range-basing quality will be applied internally rather than externally.

An inkling of the possible value of the external basing strategy in terms of the future utilization of air nuclear weapon systems is offered by Paul H. Nitze in his article, "Atoms, Strategy and Policy," in Foreign Affairs, Vol. 34, No. 2, January 1956.

> "As the number of weapons possessed by the Soviet Union increases, the importance of mere superiority in numbers diminishes. As the significance of superiority in numbers diminishes, the importance of superiority in delivery systems increases. As the Soviet approach closer to quality in delivery systems, the significance of superiority in this factor also decreases. But if one assumes the existence of roughly equivalent capabilities in delivery systems, the significance of the geographic factor increases."

Mr. Nitze does not mention the anti-ICBM weapons which are presently under consideration. His logic, however, also applies here because as weapon systems capabilities become roughly equivalent, the significance of their base dispersion or spatial relationship increases.

In recommending a military policy of action for the U. S., Mr. Nitze goes on to note that we should develop the widely dispersed base system (for military weapon systems) which the West's geographic situation makes possible. In this atomic age it has become evident that base dispersion is one of the outstanding requirements for strategic planning, both in terms of offensive and defensive concepts. The only question is the degree of dispersion. In our specific effort to augment and project the over-all effectiveness of operational ICBM systems, every pattern of base dispersion should be explored for possible leads.

With this thought uppermost in mind, the following comments on (1) possible parameters for the initial geographic selection of external base regions and (2) the relative merits that might well result from the application of an external basing strategy, are put forward for discussion.

No order of importance has been assigned to these parameters, which collectively are in a sense a criterion for the initial selection of base regions. It is probable, because of the relatively restricted nature of the earth's geography, that no single selected region will fit all of these geographic requirements.

1) Distance from base region to enemy target areas -- must be within maximum and minimum range limits of weapons.
2) Distance from enemy counter-fire areas to our base regions -- should be sufficient to force the enemy to expend weapon systems of equal or greater magnitude than ours.
3) Earth's rotation and latitude -- launch sites should, if possible, take advantage of the earth's velocity component.
4) Cultural environment and population density of base regions -- must be barren or of an extremely low order.
5) Political reliability of regions -- should be of sufficiently high order to ensure pre-strike operations and initial launchings.
6) Physical environment of base regions -- must be suitable for human

life, construction of launch sites and related facilities and for operation and maintenance of weapons, or be able to be made so. Also, local terrain should afford a maximum degree of protection from effects of weapon explosions (friendly - accident or enemy - hostile). Altitude of the region is also important in that missile range is enchanced when launching occurs at high altitudes.

7) Logistical route from U. S. to weapon basing region -- should be on or over friendly and/or neutral areas in order that it can be controlled during the pre-war period.
8) Missile's flight path to enemy's frontier -- should be over barren and/or open sea areas.
9) Areal extent of regions -- should be extensive enough to contain an optimum number of launch sites and their required support and defense elements, furnish a wide security perimeter, and provide isolation area from the rest of the world.
10) Space relationship between base regions -- consideration of establishment on a world-wide basis to avoid vulnerable concentration.
11) Geodetic control accuracy of regions -- should be in doubt to enemy.
12) Accessibility of regions -- must be approachable for development purposes.

The application of these parameters in various combinations would "point to" certain broad geographic regions as potential missile-launching areas; for example, central Africa, the Canadian Shield, and isolated island groups. Of course, the final choice of individual base sites within these regions would require further study and the consideration of additional parameters which in all probability would emphasize development costs, logistical and maintenance requirements, communication links, political reliability, base security and compatible weapon systems.

It is difficult to assess with quantitative precision the strategic and other advantages that would ensue from such a basing concept. Nevertheless, certain merits are striking when analyzed in the light of general thermonuclear warfare and its possible limitation. Accordingly, external basing might well afford the following benefits:

1) It disperses the massive nuclear retaliation strength of the U. S., thus reducing the possibility of our being knocked out in the first phase of the enemy attack.
2) It reduces the so-called "bonus value or effect" of the enemy's nuclear weapons. The radioactive fallout down wind of the explosion is wasted on surrounding barren terrain, destruction is restricted principally to the weapon impact area.
3) It generally complicates the enemy's offensive planning and specifically increases his force requirements in an all-out nuclear war; he must plan for and conduct strikes against the U. S. proper, SAC overseas bases (aircraft and missiles) and remote external ICBM sites. Defensively the external bases are a form of passive defense in that they act as magnets and hence disperse an attack.
4) It complicates the enemy's defensive requirements in that he must defend against launching sites that are dispersed world-wide.

5) It eliminates widespread hazards resulting from accidental missile or weapon explosions at or near the launch areas.
6) It reduces terminal accuracy of enemy's counter-fire ICBM, if his available geodetic and target location information on the region is unreliable.
7) It removes launching sites and ground support facilities from public observation and curiosity.
8) It geographically leaves the door open for the enemy to explore the possibility of engaging the U. S., at least initially, in a limited objective nuclear war. Although a remote possibility, world powers in a step forward to control nuclear weapons, may reach an agreement whereby the scope of nuclear wars will be limited. With all of our strengths concentrated in one region, it may be difficult for the enemy to distinguish between military and non-military objectives.

It is recognized that a basing strategy which proposes the extreme separation of the U.S.A.'s primary strategic striking force from the critical heartland is not new in itself. For some time, combat aircraft of the Strategic Air Command (SAC) have been operating from overseas installations situated about the fringe of the USSR -- "under the gun," so to speak, of the Soviet Air Force. What is being suggested here is that a new application of this strategy be considered, specifically, the basing of ICBM weapon systems entirely outside the U. S. in out-of-the-way, barren regions of the world instead of within the U. S. as they currently seem destined to be. On the surface, it would appear that this strategy exhibits certain positive advantages in terms of national security that are deserving of investigation. However, to many, a U. S.-based ICBM capable of spanning continents in a matter of minutes to deliver a nuclear warhead is the long-awaited panacea to our overseas basing problem. For the first time, the U. S. will possess a full capacity for "massive retaliation" completely free of foreign bases. Perhaps this is the answer, but does the attainment of intercontinental range automatically signify internal basing? Other geographic basing patterns or combinations thereof are possible and should be objectively explored in terms of achieving over-all system effectiveness.

CARE AND DEVELOPMENT OF A WALL-MAP COLLECTION

Howard G. Roepke
University of Illinois

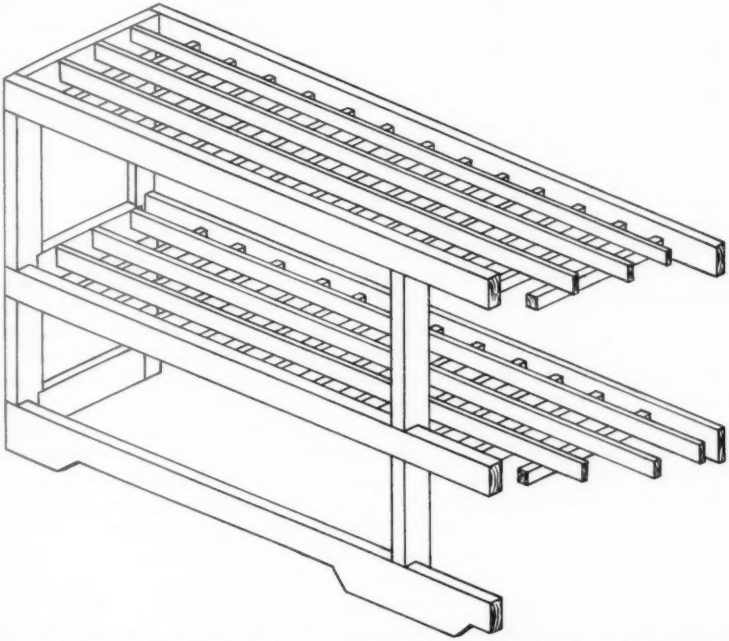
Much has been written about the storage, care, and indexing of sheet maps. Wall maps have been largely neglected--both in print and by the geography departments using them. They are essential to the effective teaching of geography, yet little thought is usually given to achieving the maximum utility from a collection. The suggestions presented here are not, certainly, the only satisfactory procedures. When I took over

responsibility for our wall-map collection, however, I had no guide at all; so I hope that these results of my trial-and-error experience over the past five years may be useful to anyone confronted with the responsibility for maintaining and improving a departmental wall-map collection. When dealing with an existing collection, and nearly all geography departments already own at least some wall maps, the major problems are evaluation, storage, indexing, and selection and preparation of additional maps.

By far the most important principle to follow in managing the collection is exclusion. Some of the criteria useful in selecting maps will be noted later; here the emphasis is on eliminating maps. No maps should be included, or retained, unless they are mounted in such a way as to be capable of being hung on the wall of a classroom for use in teaching. Research maps or unmounted sheet maps belong in a separate collection. Initial limitation of the collection is not enough, however. Periodic and ruthless "weeding-out" of the collection is necessary if it is to be kept to a manageable size. No map in poor physical condition should be maintained in the active collection if there is in the same collection its reasonable duplicate in content and coverage. The worn and torn map is not valueless, it is just useless. The deadwood of past generations must be eliminated to reduce indexing and storage problems and increase the utility of the collection. The ideal should be to have as few maps in the active collection as will satisfy current demands. A closet or locker-type storage space should be available for those maps which are removed from the active collection but are still occasionally useful. In deciding which maps to retain in the collection, a knowledge of the plans of members of the department is necessary, plus a prediction of which maps will be requested most often by people outside the department.

Even after the principle of exclusion has been applied to reduce the bulk of the collection as far as possible, storage still remains a problem. A great many storage systems have been tried in various departments in an attempt to combine preservation with easy accessibility. Maximum preservation requires closed storage while maximum accessibility is best achieved with open storage. Operating on the theory that maximum utility, here meaning accessibility, is our objective, we have chosen open storage. I designed a rack for holding the maps which has proven very satisfactory. As shown in the accompanying sketch, it is an arrangement resembling an old-fashioned umbrella rack. Not the least of its virtues is its economy. We recently built an additional rack with a capacity of 120 maps at a material cost of just $20. The basic frame is built of 2" by 4" fir, and 1" by 2" (No. 3) spruce is used for the grid. The racks can either be built in to fit the wall space of a room or they can be free-standing. As many spaces as necessary can be provided by extending the length of the rack, but we have found that four spaces is the maximum satisfactory depth if the rack is to be attached to the wall. If free-standing, a rack could be eight spaces wide without impairing its utility.

The maps and the rack spaces must be numbered to make possible easy location of the desired map. Two widely used systems--neither of which have we found satisfactory--are glued labels and painted numbers.



The glued labels are adequate temporarily, but they are often lost or become tattered and illegible. The painted numbers are very permanent. but that, too, has its drawback--it is to inflexible when a rearrangement of the maps becomes desirable. We have adopted a system using duplicate brass checks, about $1\frac{1}{4}$" in diameter, similar to those used for clothes checking at swimming pools. A tag is nailed to the rack identifying each of the spaces, and a matching tag is screwed to the rod at one end of the map. This map tag can easily be removed and transferred if the arrangement of the maps is changed. In addition to the metal tag, a gummed label bearing the title is placed on each map to provide a quick identity check.

An efficient index is equal in importance to accessible storage in maintaining the utility of a wall-map collection. The index to a wall-map collection has two principal functions. One is to make it possible to locate immediately the map desired. With the numbered-tag system described above, this is easy and requires only a notation of the rack space in which the map is kept. The other function of the index is to give as much information as possible about the map without the necessity of unrolling it for inspection. This function is much harder to accomplish. If any index at all is provided, it is usually some sort of a card system. This is adequate for such information as title and scale, but is wholly inadequate for answering what is often the most important question--precisely what area

is covered? No word description can be sufficiently detailed to answer all questions of coverage of maps whose margins often arbitrarily divide physical or political units.

To achieve an instant and complete check on coverage without unrolling the map, we have adopted an areally-arranged photographic index. By doing the photography ourselves we have held the cost down to a fairly low figure. Four copies of a photographic index covering about 300 wall maps have cost us about $200. The pictures are taken with an old Graflex camera. (Attempts were made with a 35 mm. camera, but the results proved unsatisfactory, mainly because it could not be focused precisely enough.) Film packs of regular black-and-white 4 by 5 Verichrome Pan film are used. Two inexpensive photo-floods provide adequate light. The maps are hung against a neutral, non-glaring background--a paper drop cloth tacked to the wall--and the camera is placed close enough to include the whole map in the picture. With a little experimentation in camera settings and light placement and with great care in focusing, excellent pictures can be achieved. If carefully taken, the pictures even give a fairly good idea of relief representation, degree of color contrast, and other qualities.

The map photographs are cemented to $8\frac{1}{2}$" by 11" sheets of paper for insertion into a loose-leaf binder. On each sheet, below the map photograph, the following information is typed: name of map (or area covered), type of map, scale, dimensions, publisher, condition of map, and storage location. Each pair of sheets (back to back) is inserted into a clear plastic protective cover. The insertion of as many tab sheets as desired to divide different areas or types of maps completes the index. When a map is checked out, a 3 by 5 card with the borrower's name, and the date is placed directly inside the plastic cover, obscuring the photograph and giving instant information as to where--out of its assigned storage space--the map can be found. This photographic index system has proven most satisfactory in facilitating the selection of the best map in the collection for a particular purpose.

Although care of a wall-map collection is important, continued development is essential to retain maximum utility. The core of the wall-map collection in any geography department is likely to consist of maps published commercially for this use. The products of the relatively few major publishers, domestic and foreign, are well known to most geographers, and little needs to be said about these maps. Their choice and purchase will obviously depend upon the needs and the budget of the department. In a department with a large staff having varied interests and teaching a wide range of courses, it will soon be found that many of the requirements for wall maps cannot be met from the commercial collections. Some areas of the world are poorly covered and special-topic maps are seldom offered in a form suitable for classroom use.

To complete the desired collection and serve the interests of the staff it will probably be necessary to obtain maps in unmounted sheet form. These may be obtained from many sources, but the maps must be carefully selected if they are to be useful in the classroom. Many maps which are desirable in subject matter or area do not have the visual qualities

necessary for wall-map use. Even within the same series there may be considerable variation in color intensity. Thus, some aeronautical charts can be used satisfactorily as wall maps, while some have colors too pale to be effective.

If sheet maps are to be made a useful part of the wall-map collection, they must be mounted. If a considerable number of sheet maps are to be mounted together or if the map is to be used intensively, it is probably best to have the mounting done by one of the map companies offering this service. If only one or a few sheets are involved or the map will be used infrequently, a considerable saving can be effected by doing your own mounting. The system we have found most satisfactory is the use of Chartex Dry Mounting Cloth. This is a linen cloth impregnated with wax, and the application of heat causes it to adhere to the map. We use a regular household iron for the heat source. After the backing has been applied, pairs of half-rounds top and bottom with regular seamstress binding tape for ties and hangars complete the job. Maps can be mounted in this way at a small fraction of the cost of commercial mounting, and they have proven completely satisfactory for teaching purposes.

A wall-map collection which is regularly culled, properly stored and indexed, and which is adapted to the needs of the department can be a very effective teaching aid. The difference between this and a useless collection of rolled paper lies in thoughtful planning and constant care.

HANDBOOK – DIRECTORY

of the

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AAG 1958 LOS ANGELES MEETINGS

The 54th Annual Meeting of the AAG will be held August 18-22, 1958 at the Hotel Monica in Santa Monica. The preliminary program consists of an urban-industrial field trip of Los Angeles led by Howard Nelson of UCLA on Monday, August 18. The regular meeting sessions are to be held in the Hotel Monica from Tuesday morning through Friday morning. The AAG banquet will be held on Thursday night, August 21, in the Hotel Monica. On Friday, August 22, there will be a rural-coastal field trip to Ventura-Santa Paula led by Richard Logan of UCLA.

All hotel and motel reservations are being handled by the Santa Monica Convention Bureau, 109 Santa Monica Boulevard, Santa Monica. Those desiring reservations should contact the Convention Bureau directly. Members are urged to make reservations early because August is the peak tourist season in this area.

The field trips will be from 8:30 a.m. to 5:00 p.m. All travel will be by bus. The cost of each field trip will be $4.50, including transportation and lunch. Reservations for the field trips must be made before August 1 and must be accompanied by full payment for the trip or trips. The check should be made out to H. L. Kostanick, Chairman, Local Arrangements Committee.

The urban excursion will include various aspects of the Los Angeles complex ranging through residential districts such as Beverly Hills and Lakewood, industrial areas such as Vernon, the historic Plaza, Central Business District, Signal Hill, the harbor area, Hollywood and other places of interest.

The Ventural trip will include the coastal stretch from Santa Monica to the Oxnard plain, scene of greatly varied commercial agriculture and of grazing. The return trip inland will provide a variety of climatic, economic and physical contrasts to the coast and will include a transect of the San Fernando valley.

Visual aids for the meetings will be in the charge of Tom McKnight of UCLA who should be contacted directly for information on visual equipment to be available at the meetings.

In addition to the regular sessions and field trips, a number of family excursions and other events will be scheduled during the meetings. There will be trips to Disneyland, Marineland, radio and TV studios, as well as a luncheon fashion show and beach facilities.

---Huey Louis Kostanick, Chairman
Local Arrangements Committee
Geography Department
University of California
Los Angeles 24, California

PRELIMINARY SCHEDULE OF PROGRAM

Sunday, August 17

12 Noon - 8 p.m. . . . . Registration — Mezzanine
10 a.m. - 6 p.m. . . . AAG Council Meeting — Tudor Room

Monday, August 18

8 a.m. - 8 p.m. . . . . Registration — Mezzanine
8:30 a.m. - 5 p.m. . . . Field Trip
Los Angeles Urban-Industrial Area
Howard Nelson (University of California, Los Angeles) Leader
8 p.m. . . . . Annual Banquet & Business Meeting — Tudor Room
Association of Pacific Coast Geographers
Presidential Address: J. Granville Jensen
"The Ejido in Mexico: An Agrarian Problem"

Tuesday, August 19

8 a.m. - 12 Noon . . . Registration — Mezzanine
9 - 10 a.m. . . . . General Welcoming Session — Grand Ballroom
10:30 a.m. - 12 Noon. . Three Concurrent Sessions

A. Field Report on Antarctica - Paul A. Siple (Office of the Chief of Research & Development, Department of the Army) — Grand Ballroom

B. Urban Growth & Economic Development in the West - Lyle Gibson (San Francisco State College), presiding — Tudor Room
   1. Kenneth Thompson (University of California, Davis) - Sacramento as an Inland Port
   2. Paul Griffin (Stanford University) - Urban Impact on Agriculture in Santa Clara Valley, California
   3. George R. Pappas (Washington, D. C.) - Population Growth & Distribution in the San Fernando Valley, Los Angeles, 1920-1958
   4. Andrew Wilson (University of Arizona) - Recent Changes in the Population & Economy of the "Mountain States"

C. Measurement in Economic Geography — Aeronautical Room
W. L. Garrison (University of Washington), presiding
   1. Rodney Steiner (Long Beach State College) - Some Sampling of Rural Land Use
   2. James P. Latham (University of Pennsylvania) - The Distance Relations of Cropland Areas in Pennsylvania
   3. Charles M. Chesnutwood (U. S. Government) - Computing a Qualitative Tourist Index
   4. Laurence G. Wolf (University of Cincinnati) - The American County: A Problem of Scale

2 - 4:30 p.m. . . . . General Session Grand Ballroom

Man, Time, & Space in Southern California

W. L. Thomas, Jr. (University of California, Riverside), presiding (Arranged by the Chairman)

1. George F. Carter (Johns Hopkins University) - The Longevity of Human Culture in the Far Southwest
2. Homer Aschmann (University of California, Riverside) - Evolution of a Wild Landscape and Its Persistence in Southern California
3. H. F. Raup (Kent State University) - The Transformation of Southern California to a Cultivated Land
4. Howard Nelson (University of California, Los Angeles) - The Spread of an Artifical Landscape over Southern California
5. Edward T. Price (Los Angeles State College) - The Future of California's Southland

4:40 - 6 p.m. . . . . AAG Annual Business Meeting Grand Ballroom

8 - 10 p.m. . . . . Three Concurrent Sessions

A. The Content and Scope of Geography Grand Ballroom

Preston E. James (Syracuse University), presiding

1. Peter H. Nash (University of North Carolina) - "Inventory or Prospect?" An Analysis of the Responsibilities & Limitations of Geographic Field Work
2. Richard Hartshorne (University of Wisconsin) - What Do We Mean by "Region?"
3. Gilbert F. White (University of Chicago) - Analytical Problems in Resources Management
4. David Lowenthal (American Geographical Society) - American Attitudes Toward the Conquest of Nature
5. David J. M. Hooson (University of Maryland) - Some Recent Developments in the Content & Theory of Soviet Geography.
6. Paul Marr (Stanford Research Institute) - The Expanding Scope of Military Geography

B. Political Geography Tudor Room

1. Robert O. Johnsrud (Wayne State University) - Aerial Relationships in the Functioning of Wisconsin State Agencies
2. Eric Fischer (George Washington University) - Post World War II Boundaries
3. Ying-Cheng Kiang (Eastern Illinois University) - The Sino-Burmese Boundary Problems
4. John P. Augelli (University of Maryland) - Localism vs. Federalism in the West Indies Federation
5. Fred E. Dohrs (Wayne State University-Naval War College) - The Measurement of Location in Political Geography

6. James M. Hunter (Georgetown University) - Geodiplomacy & the Eisenhower Doctrine

C. Geomorphology Aeronautical Room
R. J. Russell (Louisiana State University), presiding
1. Frank O. Ahnert (University of Maryland) - The Morphology of Estuarine Meanders in the Chesapeake Bay Area
2. William E. Powers (Northwestern University) - The Shore Zone of Lake Michigan
3. John Vann (Louisiana State University) - The Morphology of the Guiana Coast of South America
4. David I. Blumenstock (U. S. Weather Bureau, Honolulu) - The Effects of Typhoons Upon the Morphology of Coral Reefs and Atolls
5. Clark N. Crain (University of Denver) - The Origin of Stone-Lines
6. William S. Ting (Los Angeles) - The Morphology of the Tarim Basin

Wednesday, August 20

8:30 - 10:30 a.m. . . . Three Concurrent Sessions

A. Plant Geography Grand Ballroom
C. O. Sauer (University of California, Berkeley) presiding
1. William C. Robison (QM Research & Engineering Center, Natick, Mass.) - A Geographical Approach to Plant Geography
2. John F. Gaines (University of California, Los Angeles) - The Buckwheat Association in the Vegetation of the Providence Mountains Area, Eastern Mojave Desert
3. Carl Johannessen (University of California, Berkeley) - Brush Invasion on the Savannas of Honduras
4. Marvin Mikesell (University of California, Berkeley) - Forest & Scrub in Northern Morocco
5. T. K. Chang (Wisconsin State College, Stevens Point) - Dispersal of Taro in Asia
6. B. L. Gordon (University of New Mexico) - Aboriginal Peoples of Panama & the Interchange of Plants Between the Americas

B. Agricultural Geography of the U. S. Aeronautical Room
Walter Kollmorgan (University of Kansas), presiding
1. Howard F. Gregor (San Jose State College) - Irrigation Farming Frontiers in the California Dry Lands
2. Chester F. Cole (Fresno State College) - Use Potential of the Salt & Sodium Affected Soils of the Eastern San Joaquin Valley

3. Howard G. Roepke (University of Illinois) - Changes in Corn Production of the Northern & Western Margins of the Corn Belt
4. Herbert H. Gross (Concordia Teachers College, Ill.) - Andrew Duda & Sons, Inc., of Florida - A Single-Family Agricultural Enterprise
5. Frederick L. Wernstedt (Pennsylvania State University) - Climatic Fluctuation & Agriculture in the Great Basin, 1931-1956
6. Jacquelyn L. Beyer (Montana State University) - An Analysis of Irrigation Development in the Upper Colorado Basin Project

C. Africa & the Middle East — Tudor Room

1. Richard J. Houk (DePaul University, Chicago) - The Cela Colonato, Portugal's Principal Agricultural Settlement in Angola
2. Benjamin E. Thomas (University of California, Los Angeles) - African Land Use Changes in the Kenya Highlands
3. Donald R. Petterson (Northwestern University) - An Analysis of the Location of European Population in British Tropical East Africa
4. Alexander Melamid (New York University) - "Californias" of the Middle East.
5. George B. Cressey (Syracuse University) - Land Use in Yemen
6. Ali M. Ali-Maiyah (State University of Iowa) - A Method of Regional Classification Applied to Iraq

10:45 a.m. - 12:15 p.m. . Four Informal Discussion Groups

A. Political Geography — Grand Ballroom
H. L. Kostanick (University of California, Los Angeles), presiding
Panel: Richard Hartshorne (University of Wisconsin)
Preston E. James (Syracuse University)

B. The Heat Balance Concept in Physical Geography — Aeronautical Room
David H. Miller (QM Research & Engineering Center), presiding
Panel: Arnold Court (University of California, Berkeley)
Kenneth Hare (McGill University)
Morris Neiburger (University of California, Los Angeles)

C. Field Training for Geographers — Tudor Room
George Kish (University of Michigan), presiding
Panel: Charles M. Davis (University of Michigan)
Keith Decker (Central Michigan College)
Richard F. Logan (University of California, Los Angeles)

D. Cartography Cavalier Room
Allen K. Philbrick (Michigan State University), presiding

2 - 6 p.m. . . . . AAG Council Meeting Cavalier Room

2 - 4:30 p.m. . . . . Three Concurrent Sessions

A. Europe & the U.S.S.R. Grand Ballroom
1. Andrew F. Burghardt (Stanford University) - The Linguistic & Political Assimilation of the Minorities of Burgenland
2. George W. Hoffman (University of Texas) - Changing Rural Landscape in Yugoslavia
3. S. Van Valkenburg (Clark University) - The Standard of Landuse Within the European Common Market
4. Ferencz P. Kallay (Valparaiso University) - A New Home for Italian Refugees from Venezia Guilia
5. Theodore Shabad (New York City) - Locational Factors in the Soviet Aluminum Industry
6. W. A. Douglas Jackson (University of Washington) - Wheat in the North: Soviet Experience in the Non-Chernozem Zone of European Russia
7. Bogdan Zaborski (University of Ottawa) - Rural Settlements of the Western Fringe of the Soviet Union

B. Climatology Tudor Room
1. Paul E. Lydolph (Los Angeles State College) - The Complex Method in Climatology
2. Iven Bennett (QM Research & Engineering Center, Natick, Mass.) - Features of the Synoptic Climatology of Freezing Rain in the United States
3. Arthur V. Dodd & Andrew D. Hastings (QM Research & Engineering Center, Natick, Mass.) - Dew Point Temperatures in Northern Hemisphere Deserts
4. Douglas B. Carter (Laboratory of Climatology, Centerton, N. J.) - Four Main Patterns on Maps of Thornthwaite's Water Balance
5. George C. DeLong (Eastern Michigan College) - Temperature Changes in the Northeastern United States, 1906-1955
6. David H. Miller (QM Research & Engineering Center, Natick, Mass.) - The Pattern of Insolation Frequency in the United States
7. Frederick Hung (International Christian University, Tokyo) - A New Map of Subtypes of the Monsoon Climate Using a Modified Koppen System

C. Asia Aeronautical Room
1. Edward L. Ullman (University of Washington) - Trade Centers & Tributary Areas in the Philippines
2. Pradyumna P. Karan (University of Kentucky) - A New Map of the Manufacturing Regions of India

3. Curtis Manchester (University of Hawaii) - How Poor is Japan?
4. Chiao-Min Hsieh (Catholic University) - The New Development Project of Hwang Ho
5. Don C. Bennett (Syracuse University) - Population Pressures in Java
6. Robert B. Johnson (Hq., Pacific Air Forces, Hickam Air Force Base, Hawaii) - The Superimposed Land Transportation Net of the Menam Chao Phya Delta
7. Thomas F. Barton (Indiana University) - Mechanized Industry in Thailand

8 - 10 p.m. . . . . Two Concurrent Sessions

A. Urban Geography — Tudor Room

Edward Ullman (University of Washington), presiding

1. Duane S. Knos (University of Kansas. Community Studies, Inc.) - The Distribution of Population, Kansas City Metropolitan Area, 1950
2. John R. Borchert (University of Minnesota) - The Twin Cities Urbanized Area, 1900-1980
3. Allen K. Philbrick (Michigan State University) - Composite Urban Hinterlands
4. Edwin N. Thomas (State University of Iowa) - Aerial Associations between Population Growth & Selected Factors in the Chicago Urbanized Areas
5. Jerome D. Fellman (University of Illinois) - Residential Settlement in Chicago: Its Relation to Subdivision & Lot Sale
6. Clyde E. Browning (Chicago Area Transportation Study) - Selected Relationships of Land Use & Distance from the City Center Within the Chicago Area

B. Cultural Geography — Aeronautical Room

1. Joseph Sonnenfeld (University of Delaware) - Implement Geography as Geographic Synthesis
2. John R. Fernstrom (Georgetown University) - The Distribution of Aboriginal Watercraft Types
3. Fred Kniffen & Martin Wright (Louisiana State University) - Disaster & Reconstruction in Cameron Parish, Louisiana
4. Edwin Doran, Jr. (University of South Carolina) - The West Indian Hip-Roofed Cottage
5. Frederick J. Simoons (University of Wisconsin) - The Distribution & Origin of Widely-Held Prejudices Against Certain Animal Foods in the Old World
6. Arch Gerlach (Library of Congress) - Linguistic Maps

Thursday, August 21

8:30 - 10:30 a.m. . . . Three Concurrent Sessions

A. Geographic Aspects of Economic Development
Grand Ballroom

Norton Ginsburg (University of Chicago), presiding
(Arranged by the Chairman)

1. Philip L. Wagner (University of Chicago) - On Classifying Economies
2. Wilbur Zelinsky (Chesapeake & Ohio Railway Co., Detroit) - Population Geography & the Problems of Underdevelopment
3. Allan L. Rodgers (Pennsylvania State University) - Measurements of the State & Rate of Industrial Development with Reference to Southern Italy
4. J. E. Spencer (University of California, Los Angeles) - An "Underdeveloped" Population? The Example of Malaya (to be read by the Chairman)
5. L. A. Peter Gosling (University of Michigan) - A Geographic Approach to Agricultural Development In Malaya
6. Ann Larimore (University of Chicago) - A Measure of Economic Change: Sequent Development of Units of Occupance

B. Cultural Geography Tudor Room

1. Louis E. Guzman (Institute of Inter-American Affairs, Balboa, Canal Zone) - The Agricultural Terraces of the Ancient Highland Maya
2. Robert C. West (Louisiana State University) - The Lenca Indians of Honduras: A Study in Ethnogeography
3. Donn K. Haglund (Immaculata College, Immaculata, Pa.) - Relocation of the Thule, Greenland, Eskimo Settlement
4. Andrew H. Clark (University of Wisconsin) - Changing Geographies of Cultural Origin & Religious Preference in Nova Scotia
5. George Kakiuchi (University of Washington) - "Stone-Wall" Strawberry Culture, Kuno Mountain, Japan
6. Forrest R. Pitts (University of Oregon) - The Origin & Development of the Jo-Ri Land Division Scheme in Japan

C. Cartography Aeronautical Room

1. Arnold J. Kreisman (Aero Service Corp.) - The Compilation & Design of the Small-Scale, Multi-Purpose Map
2. John E. Dornbach (USAF Aeronautical Chart & Information Service, St. Louis) - Design Problems in Aeronautical Charting

3. Neil E. Salisbury (State University of Iowa) - Problems in the Visual Correlation of Isopleth Maps
4. Willis R. Heath & John C. Sherman (University of Washington) - Investigation of Problems in the Preparation of Tactual Maps for the Blind
5. William G. Bryon (Los Angeles State College) - Application of the Recording Densitometer to the Measurement of Density on Population Maps
6. Robert J. Goodman (Wayne State University) - Swatch Maps: Their Preparation & Use to Clarify Spatial Concepts

10:45 a.m.-12:15 p.m. . . . . Four Informal Discussion Groups

A. Economic Development — Grand Ballroom
Norton Ginsburg (University of Chicago), presiding
Panel: Richard Hartshorne (University of Wisconsin)
Frank Keller (Tulane University)
Edward Ullman (University of Washington)
Gilbert White (University of Chicago)

B. Panel on Geomorphology: Mass Wasting — Tudor Room
Clark Crain (University of Denver), presiding
Panel: William Powers (Northwestern University)
Richard J. Russell (Louisiana State University)

C. Pleistocene Climates of the Great Basin & the Southwest — Aeronautical Room
Campbell Pennington (University of Utah), presiding
Panel: Theodore Downs (Los Angeles County Museum)
Vasil Gvosdetsky (University of Utah)
Dan Jones (University of Utah)
Homer Aschmann (University of California, Riverside)

D. Geography & Television — Cavalier Room
Richard S. Thoman (Alexandria, Va.), presiding
Panel: Richard Houk (DePaul University)
David L. Jennings (Los Angeles City College)
George Kish (University of Michigan)
Harold M. Mayer (University of Chicago)
Jewell A. Phelps (George Peabody College for Teachers)

2 - 4:30 p.m. . . . . Three Concurrent Sessions

A. Economic Geography of the United States — Grand Ballroom

1. Cyrus J. Sharer (Villanova University) - Postwar Trends in the Iron & Steel Industry of Eastern Pennsylvania & Maryland
2. Lloyd D. Black (Office of Area Development) - Economic Development by Legislation: Geographic Aspects of U. S. Unemployment & Underemployment

3. Edward J. Taaffe (Northwestern University) - Regional Patterns of Airline Competition & Monopoly
4. John Fraser Hart (Indiana University) - Negro Migration in the United States
5. Richard L. Morrill (University of Washington) - Medical Service in the United States: Location & Utilization of Physicians
6. Richard I. Ruggles & Eugene Cotton Mather (University of British Columbia--University of Minnesota) - Clustered Settlements Along the Middle Fraser Valley of British Columbia
7. Luella N. Dambaugh (University of Miami) - The Role of Migratory Agricultural Labor in South Florida

B. Physical Geography Aeronautical Room
John E. Kesseli (University of California), presiding

1. Walter F. Wood (QM Research & Engineering Center, Natick, Mass.) - Flat Grasslands & Hilly Forests--Why?
2. Y-Fu Tuan (Indiana University) - Soil Evolution & Land-Form Development
3. T. P. Jost (University of Ottawa) - The Reconstruction of Ancient Climates on the Basis of the Present-Day Morphology
4. Thomas M. Griffiths (University of Denver) - A Theory of Rock-Stream Morphology
5. Arleigh H. Laycock (University of Alberta) - Soil Surveying in Mountain Watersheds: The Problem & One Solution
6. S. S. Visher (Indiana University) - The Geomorphology of Indiana
7. Harley J. Walker (Georgia State College, Atlanta) - Snow & Ice as Sources of Water in the American Arctic

C. Latin America Tudor Room
Frank Keller (Tulane University), presiding

1. Donald D. MacPhail (University of Colorado) - Postwar Dairy Development in Puerto Rico
2. Richard V. Smith (Miami University, Ohio) - Ponce & the Distribution of Manufacturing in Puerto Rico
3. Ross N. Pearson (University of Michigan) - The Changing Status of Barranquilla Among the Ports of Colombia
4. Charles S. Alexander (University of Illinois) - The Changing Functions of Willemstadt, Curacao
5. Henry S. Sterling (University of Wisconsin) - Contrasts in Lowland Pioneer Settlement in Western Venezuela
6. Rayfred L. Stevens & Paulo Reboucas Brandao (Universidad da Bahia, Brazil) - The Diversification of the Economy of the Cacao Coast of Bahia, Brazil

7. Phyllis R. Greiss (Pennsylvania State University) - Some Effects of the Nationalization of the Bolivian Tin Mining Industry

8 p.m. . . . . Annual Banquet Grand Ballroom
Address by the Honorary President, John Leighly, University of California, Berkeley
"John Muir's Image of the West"

Friday, August 22

8:30 a.m. - 5 p.m. . . Field Trip to Ventura Area
Richard Logan (University of California, Los Angeles), leader

9 - 11:30 a.m. . . . . Two Concurrent Sessions

A. Economic Geography - Photo Interpretation Tudor Room

1. Harold H. McCarty (State University of Iowa) - The General Content of Economic Geography
2. Leonard Zobler (Barnard College, Columbia University) - Comparative Evaluation of Food Resources by International Acre Equivalents
3. Brian J. L. Berry (University of Washington) - The Structure of Business within the City of Spokane
4. Charles M. Tiebout (Northwestern University) - Econonomists on Location Theory
5. Duane Marble & John Nystuen (University of Washington) - Commercial Geography of Urban Areas & the Movement of People
6. Virginia P. Finley (Snow Ice and Permafrost Research Establishment, U. S. Army) - Aerial Photographs as Source Materials in Geographic Research: An Example from the Grand Coulee Area
7. Margery Smith Goodman (University of Detroit) - Criteria for the Identification of Types of Farming on Aerial Photographs

B. Mineral & Energy Geography Grand Ballroom

1. Lambert B. Halsema (National University of Mexico) - Ensenada Exportadora de Sal: A Study in Developmental Economic Geography
2. E. Willard Miller (Pennsylvania State University) - Mineral Regionalism of the Canadian Shield
3. Elbert E. Miller (Western Washington College of Education, Bellingham) - Some Aspects of the Uranium Boom
4. Nathaniel B. Guyol (Standard Oil Co. of California) - Nuclear Fuels in the Pattern of World Energy Supplies
5. Harold A. Hoffmeister (University of Colorado) - Oil Shale and Shale Oil in Colorado

6. George F. Deasy (Pennsylvania State University) - Bituminous Coal Strip Pits as an Element of the Landscape of the Northern Appalachian Coal Fields
7. Warren Kress (North Dakota Agricultural College) - Fargo Electric Power in Minnesota: A Geographical View

PAID MEMBERSHIP OF AAG

Division	Number Paid			
	Dec. 1954	Dec. 1955	Dec. 1956	Dec. 1957
New England-St. Lawrence	103	105	114	130
New York-Ontario	71	78	83	66
New York Metropolitan	115	125	129	143
Middle Atlantic	364	375	400	396
East Lakes	151	153	172	191
West Lakes	250	232	253	301
Southeastern	109	103	108	107
Great Plains-Rocky Mts.	60	81	74	66
Southwestern	70	76	75	81
Pacific Coast	168	190	204	224
No Division affiliation	-	46	-	35
APO & Overseas	-	32	-	63
Totals	1461	1596	1612	1803
Number removed from rolls for non-payment of dues	91	95	80	93

A recent tally of the current membership on the rolls showed: 1,280 full members; 20 student members; 357 associates; 181 student associates; 30 married couples; 34 life members; 12 remitted; and 4 applications pending. Total: 1,948.

---Amy M. Pruitt
Central Office Manager

NOMINATIONS FOR 1958

The Nominating Committee presents the following candidates for officers and councilors:

For President	Lester E. Klimm
For Vice President	Paul A. Siple
	John C. Weaver
For Councilor.	Huey L. Kostanick
	G. Etzel Pearcy
	Hal Raup
	Kirk H. Stone
	---Norman Carls
	---Trevor Lloyd
	---Samuel N. Dicken, Chairman

BIOGRAPHICAL INFORMATION SUPPLIED BY THE CANDIDATES

Nominee for President:

Lester E. Klimm, Ph.D.

Professor of Geography, University of Pennsylvania

Experience with AAG business: AAG Vice President and Chairman of Regional Division Committee 1957; Councilor 1944-47; Chairman, Committee on Merger of AAG and ASPG 1946-47; Chairman, Committee to Revise AAG Constitution 1944-46; AAG representative on AAAS 1954-57; Finance Committee 1938-39.

Experience in administration and in presiding at meetings: Chairman, innumerable committees; Director of Student Personnel, Wharton School, University of Pennsylvania; President, Eastern Association of Deans 1946; Vice-Chairman, Division of Geology and Geography, National Research Council, 1945-48.

Experience in presenting geography to non-geographers: See NRC and AAAS service above; Deputy Member and Member, Committee on Geophysics and Geography, Research and Development Board, Department of Defense, 1948-53.

Other experience: Thirty-one years of teaching physical and economic geography at undergraduate and graduate levels; four years of military geography in the War Department; field work in U.S., British Isles, Continental Europe, Brazil; personal research in economic geography, port geography, population geography, geographic methodology; service on numerous committees directing or evaluating research.

Nominees for Vice President:

Paul A. Siple

Director, Polar Research Division
Office, Chief of Research & Development
U. S. Army

Experience with AAG business: Member of Council 1950-52; Chairman, later Consultant, Committee on Geographers in National Defense 1951-55.

Experience - Administrative or Executive: Head, Biology Department and Leader, Marie Byrd Land, Sledging Party - Byrd Antarctic Expedition II 1933-35; Geographer and Supervisor of Logistics 1939-41; Chief of Climatology and Environmental Protection Div., Office, Quartermaster General, U.S. Army 1941-46; Director of Environmental Research, U.S. Army General Staff 1946-53; Director of Basic Research, Office, Chief of Research & Development, U.S. Army 1954-55; Chairman, U.S. Army Committee on Environment 1947-55; Chairman, Personnel Selection Board IGY 1955-56; Scientific Leader, IGY South Pole Station 1956-57; Director, Polar Research Division, Office Chief of Research & Development, U.S. Army 1958; Member of U.S. National Committee for IGY 1958; Member, IGY Antarctic Committee 1958; Chairman or member of numerous Ad Hoc Committees associated with geographic and research subjects 1951-55.

Nature and Extent of Research: Extensive military-geography research involving climatology, (Director of Climate Zone Map Series Monthly for all continents except Antarctica) Human Climatology; Wind Chill; Clothing Almanacs, etc. Application of Climatology to building design published variously by National Research Council, BRAB, American Institute of Architects and House Beautiful Magazine. Polar Research, e.g., Proceedings of the American Philosophical Society, Vol. 89, No. 1, April 30, 1945, "Reports on the Scientific Results of the U.S. Antarctic Service Expedition, 1939-41." Geographical Exploration from Little America III, the West Base of the U.S. Antarctic Service Expedition, 1939-41, pp. 23-60. Measurement of Dry Atmospheric Cooling in Subfreezing Temperatures, pp. 177-99 (with Chas. F. Passel - Geologist), General Principles Governing Selection of Clothing for Cold Climates, pp. 199-234; and many others.

John C. Weaver, Ph.D.
Dean of Graduate College, University of Nebraska

Experience with AAG business: Council AAG 1948-51; Vice President of ASPG at time of amalgamation; AAG Awards Committee, Chairman 1948-49; AAG Publications Committee 1949-52; Annals Editorial Board 1951-53; AAG Nominating Committee, Chairman 1953; AAG Honors Committee 1956-58, Chairman 1957-58.

Experience in administration, presiding at meetings, etc.: National Research Council Committee on Geography, Advisory to the Office of Naval Research 1949-53, Chairman 1953; Acting Chairman, Department of Geography, University of Minnesota 1954-55; Dean School of Arts and Sciences, Kansas State College 1955-57; Dean of Graduate College and University Research Administrator, University of Nebraska 1957 to present.

Nature and extent of research: Assistant Editor, Geographical Review, American Geographical Society 1940-42; Member of Research Staff, Division of Geography & Cartography, U.S. Dept. of State 1942-44; Chief, Naval Intelligence Research Section, Hydrographic Office, Office of the Chief of Naval Operations 1944-46; Research Consultant to Midwest

Barley Improvement Association, Milwaukee, Wisconsin 1946-52; Consulting Editor for McGraw-Hill series in Geography 1951 to present; Principal Investigator, Research Grant, Geography Branch, Office of Naval Research 1952-55; Consulting Editor, Geographical Review, American Geographical Society 1954 to present; AAG citation for "Meritorious contribution to the field of geography" 1955; author of numerous articles and five books.

Other experience: Assistant Professor 1946-47, Associate Professor 1947-48, Professor 1948-55, Department of Geography, University of Minnesota; Expert Consultant to the Committee on Geography and Geophysics of the Research & Development Board of the National Military Establishment, Washington, D.C. 1947-52; Member Publications Committee, International Geographical Union 1953-56.

Nominees for Councilor:

Huey Louis Kostanick, Ph.D.
Associate Professor of Geography
University of California at Los Angeles

Experience with AAG business: Member of Committee on International Fellowships 1949-51; Member, Program Committee for Memphis meeting 1954-55; Member, Committee on Political Geography 1955-56; Member of AAG Council (as President of APCG) 1956-57; Chairman, Local Arrangements Committee for Los Angeles meeting 1956-58; Member, Program Committee for Los Angeles meeting 1957-58.

Experience as spokesman for a group: President, Association of Pacific Coast Geographers 1956-57; President, UCLA chapter of Pi Gamma Mu 1955-57.

Experience on working committees: Chairman and member of numerous university and departmental committees; participation in curriculum planning and teachers institutes in California; participation as chairman or member of various institutes and meetings both geographic and interdisciplinary.

Fields of geographic interest: Political Geography, Soviet Union and Eastern Europe, Middle East.

Nature and extent of research: Monograph, "The Resettlement of Bulgarian Turks in Turkey, 1950-53"; Presidential Address APCG, "Eastern Europe--Retrospect and Prospect"; articles such as "Soviet Resources," "The Contribution of Geography," "Postwar Population Shifts in Poland," "The German Plea for Lebensraum," "Oil in World Politics," "North Africa: Land and People," "Geopolitical Changes Eastern Europe"; various professional papers delivered at meetings of AAG, APCG, and California Council of Geography Teachers; encyclopedia articles; newspaper articles.

G. Etzel Pearcy, Ph.D.
Special Advisor on Geography, Department of State

Experience with AAG business: Currently Program Chairman, Middle Atlantic Division.

Experience on working committees: Various Government Committees, including the Board on Geographic Names and the Air Coordinating Committee.

Other experience: Geographer for Trans World Airlines; Geographic Attache at American Embassies in Bangkok, New Delhi, London, and Paris.

Fields of geographic interest: Political geography and transportation geography. Editorship and co-editorship on textbooks; authorship and co-authorship on articles in professional journals and trade periodicals.

Hallock F. Raup, Ph.D.
Professor of Geography and Head
Department of Geography and Geology
Kent State University

Experience with AAG business: Member of Editorial Board, Annals. Divisional Chairman, East Lakes Division. Liaison work with U.S. Air Force.

Experience in administration: Department Head, Kent State University, from 1945 to present.

Nature and extent of research: Compilation of a file of geographical names of the State of Ohio; historical geography of eastern Pennsylvania; historical geography of California; history of American geography. Preparation of text materials for USAFROTC; co-author of elementary text; more than 30 published articles in geographical and historical periodicals. Map editing and place name research, U.S. Board on Geographical Names.

Kirk H. Stone, Ph.D.
Professor, Department of Geography
University of Wisconsin

Experience with AAG business: AAG representative, International Society of Photogrammetry Meetings, Stockholm, Sweden 1956; Chairman, Discussion Group on Air Photo Interpretation, Memphis meetings; member, first AAG Directory committee; member, host group for three AAG annual meetings.

Experience as spokesman for a group: Local departmental committees and Summer School departmental chairman 1956; Section Chief, Summer Study Group, Lincoln Laboratory, M.I.T., Summer 1952 (D.E.W. project); Chairman, Geology & Geography Section, Alaska Science Conference, McKinley Park, Alaska, August 1952; Field Party Chief, Bureau of Land Management, Alaska, Summer 1946; Original O.S.S. member, Joint Intelligence Study Publishing Board 1943; and Section Chief in O.S.S. (Washington & Ceylon).

Experience on working committees: Chairman, International Society of Photogrammetry commission on air photo coverage, current; member, American Geography, Inventory and Prospect Committee on Regional Geography and Committee on Field Techniques 1951-54; member, Office of Naval Research, Geography Branch, Arctic Research Labor-

atory Advisory Board 1951-52; member, Research & Development Board, U.S. Dept. of Defense, Committee on Air Photo Interpretation, 1950-52; member, International Geographic Union, Committee on Utilization of Aerial Photographs 1950-51; U.S. Representative, Pan American Institute of Geography and History, Committee on Settlement and Colonization 1951-52.

Other experience: Fulbright Research Scholar, Scandinavia, August 1955-September 1956; Consultant, Bureau of the Census, U.S. Dept. of Commerce, planning of Alaskan censuses for 1950 and 1960.

Fields of geographic interest: Frontier settlement analysis; geography of the Northern Lands; air photo interpretation.

Nature and extent of research: Currently on three-year research project sponsored by ONR Geography Branch on "High Latitude Frontier Settlement" for comparison of frontier settlement types and planning in northwestern North America and Scandinavia as well as for training Scandinavian and American graduate students in this research; monograph reproduced by U.S. Dept. of the Interior and articles and chapters published in Geographical Review, Arctic, and Photogrammetric Engineering, and a textbook on the fields of interest noted.

TRENDS IN PLACEMENT AND TRAINING OF AMERICAN GEOGRAPHERS

Joseph A. Russell, Chairman, AAG Committee on Trends in Training and Placement of American Geographers*

In 1953 the Executive Committee of the AAG appointed a Committee to determine whether there are any recognizable trends in the placement opportunities of young American geographers and in the training being given students of geography at all levels in American Colleges and Universities. The Committee prepared questionnaires and distributed them to 188 departments in colleges and universities designated by Divisional Charimen as having curricula leading to degrees in geography.

Replies were received from virtually all departments, but for various good reasons a large proportion of those answering the questionnaire were unable to be sufficiently specific in their answers to the questions posed to make their data usable for the purposes of the study. However, enough departments did have the necessary records and had been functioning long enough to furnish what the Committee feels to be a satisfactory cross-section of training and placement at the dates specified in the Tables accompanying this report. Even among these departments there was lack

*Other members of the Committee are: George Deasy, Robert Glendinning, G. Donald Hudson, Merle Prunty, Howard Roepke, Joseph Spencer, Vincent Throop, Divisional Chairmen in 1953-54 were ex-officio members of the Committee.

TRENDS IN PLACEMENT OF GEOGRAPHERS

Table I - Undergraduates

Graduates Placed In	1940-1941		1948-1949		1953-1954	
	No.	%	No.	%	No.	%
Universities	0	0	0	0	0	0
Colleges	0	0	0	0	0	0
Teachers Colleges	0	0	0	0	0	0
Junior Colleges	0	0	0	0	0	0
Primary or Secondary Schools	91	68.4	190	45.7	148	35.7
Graduate Work	16	12.0	89	21.4	119	28.7
Federal Government (Civil)	7	5.3	64	15.4	63	15.2
State Government	2	1.5	8	1.9	11	2.7
Local Government	0	0	9	2.1	6	1.5
Business and Industry	17	12.8	56	13.5	68	16.4
	133 (18 Depts)		416 (39 Depts)		415 (54 Depts)	

Table II - Masters

Graduates Placed In	1948-1949		1953-1954	
	No.	%	No.	%
Universities	9	7.0	7	4.1
Colleges	11	8.6	13	7.6
Teachers Colleges	9	7.0	4	2.3
Junior Colleges	1	.8	3	1.8
Primary or Secondary Schools	22	17.2	26	15.2
Graduate Work	31	24.2	44	25.7
Federal Government (Civil)	30	23.4	37	21.6
State Government	5	3.9	8	4.7
Local Government	0	0	2	1.2
Business and Industry	10	7.8	27	15.8
	128 (19 Depts)		171 (26 Depts)	

Table III - Ph.D.

Graduates Placed In	1940-1941		1948-1949		1953-1953		1940-1954	
	No.	%	No	%	No	%	No	%
Universities	6	42.9	9	39.1	23	44.2	38	42.7
Colleges	4	28.6	6	26.1	13	25.0	23	25.8
Teachers Colleges	0	0	4	17.4	8	15.4	12	13.5
Junior Colleges	0	0	0	0	2	3.9	2	2.2
Primary or Secondary Schools	0	0	0	0	0	0	0	0
Graduate Work	--	--	--	--	--	--	--	--
Federal Government (Civil)	2	14.3	4	17.4	2	3.9	8	9.0
State Government	0	0	0	0	0	0	0	0
Local Government	0	0	0	0	1	1.9	1	1.1
Business and Industry	2	14.3	0	0	3	5.8	5	5.6
	14 (3 Depts)		23 (5 Depts)		52 (11 Depts)		89	

of comparability in answers to many of the questions. Thus, the figures which are the bases for Tables I through VI are inexact and incomplete, but are believed to give a valid approximation of the placement and training situation for American geography in 1940-1941; 1948-1949; and 1953-1954. These dates were selected arbitrarily, with the objective of using a pre-World War II year, an early post-World War II year, and a post-World War II year late enough to show the effects of curriculum and employment changes that occurred as a result (partly) of the wartime experiences of geographers. The deficiencies in this sampling method are recognized by the Committee.

Trends in Placement of Geographers: Undergraduate. Table I shows the initial placement of undergraduate majors in geography. The figures for 1940-1941 are based on the replies from five departments that awarded the Ph.D., the Master's, and the undergraduate degree; five departments that awarded the Master's and undergraduate degree; eight departments that awarded the undergraduate degree. Figures for 1948-1949 are based on replies from nine Ph.D. departments, nine Master's departments, and 21 undergraduate departments. Figures for 1953-1954 are based on replies from 12 Ph.D. departments, 12 Master's departments, and 30 undergraduate departments. No undergraduate majors were placed in University or College teaching. Placement in primary and secondary schools decreased sharply and steadily whereas the continuation of undergraduates into graduate study increased in each succeeding period. Employment in Federal Civil Service increased materially in the post-war period over the pre-war period, but remained constant in the two post-war periods. No marked trend in the proportion of undergraduate geographers placed in State or local government took place, but there was a modest increase in those employed in business and industry although replies indicate that most of these were employed in a non-geographic capacity.

Master's. Data for 1940-1941 are lacking for departments that did not award the Ph.D. as well as the Master's degree. However, from partial data it was apparent that the largest number of successful Master's students in 1940-1941 went on to more advanced graduate study, and that employment in college, Federal Civil Service, universities, teachers colleges, and primary-secondary education provided the only other outlets. During the two succeeding periods (1948-1949 and 1953-1954) there was a marked broadening of the employment opportunities for geographers with Master's degrees. The percentage continuing in graduate study, entering Federal Service, or teaching in primary-secondary schools remained relatively constant; but the percentage of those with the Master's degree being employed by universities, colleges, and teacher's colleges decreased about two-thirds in each case. The most important increases in employment have occurred in fields other than teaching, such as business and industry, and state and local government.

Ph.D. Degrees. There has been little change in the percentages of placements of successful Ph.D. candidates at the three periods sampled. (Table III). Placement in teacher's colleges and junior colleges increased, that in Federal Government and business and industry decreased. Other

TRENDS IN GEOGRAPHIC TRAINING

Table IV - Undergraduate Major Program

	Totals					
	1940-1941		1948-1949		1953-1954	
	No.	%	No.	%	No.	%
No Requirements	7	29.2	6	11.3	4	6.1
Principles/Elements	24	100.0	41	77.4	48	72.7
Physical	7	29.2	20	37.7	28	42.4
Economic	12	50.0	29	54.7	34	51.5
Weather & Climate	19	79.2	25	47.2	36	54.5
Meteorology	7	29.2	18	33.9	24	36.4
Cartography	4	16.7	17	32.1	32	48.5
Field Methods	7	29.2	6	11.3	11	16.7
Map Reading (Interpretation, etc.)	2	8.3	8	15.1	19	28.8
North or Anglo America	15	62.5	28	52.8	35	53.0
Other Specified Region	4	16.7	16	30.2	19	28.8
Other Unspecified Region	10	41.7	18	33.9	23	34.8
State of Institution	2	8.3	5	9.4	8	12.1
Conservation	6	25.0	15	28.3	17	25.8
Political or Historical	2	8.3	10	18.9	17	25.8
Seminar	3	12.5	11	20.8	19	28.8
	(24 Depts)		(53 Depts)		(66 Depts)	

Table V - Master's Program

Field Methods	7	58.3	9	56.3	15	68.2
Cartography	2	16.7	6	37.5	15	68.2
Map Reading (Interpretation, etc.)	0	0	1	6.3	8	36.4
Climatology	7	58.3	9	56.3	15	68.2
Meteorology	1	8.3	2	12.5	7	31.8
Physical	3	25.0	6	37.5	8	36.4
Cultural	4	33.3	6	37.5	12	54.5
Research Seminar	6	50.0	14	87.5	19	86.4
History & Philosophy of Geography	5	41.7	9	56.3	12	54.5
Thesis	6	50.0	8	50.0	21	95.5
	(12 Depts)		(16 Depts)		(22 Depts)	

Table VI - Ph.D. Programs

No Requirements	5	55.6	9	60.0	13	68.4
Field Methods	1	11.1	4	26.7	4	21.1
History & Philosophy of Geography	1	11.1	3	20.0	4	21.1
Advanced Regional			0	0	1	5.3
Statistics			1	6.7	2	10.5
Cartography			1	6.7	2	10.5
Research Seminars			3	20.0	3	15.8
	(9 Depts)		(15 Depts)		(19 Depts)	

categories remained relatively constant.

Trends in Training: It is more difficult to categorize elements in the training program used by the departments at the various levels than the placement opportunities. Differences in course definitions, titles, and content were apparent from the answers to the questionnaire. The titles listed in Tables IV, V, and VI are those in which sufficient comparability is believed to exist so that analysis is meaningful.

Undergraduate Major Program. Over the periods included, a smaller percentage of institutions required "Principles/Elements" (although there may have been some confusion between "Principles/Elements" and "physical," which showed an increase over the sample periods) "Weather and Climate," and "Field Methods." Virtually no change took place in the percentage of institutions requiring "economic geography" or "conservation." Small percentage decreases took place in the requirement for "North America" or "Anglo America" and other unspecified regional study; a marked increase took place in specific regional requirements, but there was no definite trend toward any single region. A much smaller percentage of departments had no undergraduate requirements at the end of the period than at the beginning.

A small increase took place for "meteorology" and a materially larger percentage of departments required "physical," "cartography," "map reading," "political" or "historical," and "seminar" during the course of the years covered by the survey.

Master's Programs. A more systematic program of training Master's candidates in geography is reflected by the fact that all courses listed in Table V were required by a much larger percentage of the reporting departments in 1953-1954 than in 1940-1941.

Ph.D. Programs. Although a liberalization of requirements for the Ph.D. is indicated by the rising percentage of departments that have no specific requirements for the Ph.D. degree (Table VI), a somewhat wider range of work was expected in 1953-1954 than in previous years. Because the Ph.D. program is ordinarily fitted to the needs of individual students, and virtually all Ph.D. candidates are expected to have had the work required in undergraduate and Master's programs, it is meaningless to attempt to draw any conclusions from Table VI.

Note: Tables I through IV are summaries showing only totals. Detailed tables and committee report are available on request to AAG Central Office.

LETTERS . . .

Dear Editor:

The tremendous increase in college enrollment is forcing some Geography Departments to expand within cramped and inadequate quarters. More fortunate departments are alleviating this condition by planning quarters in a new building.

The problem of planning a new Geography Department is a creative and an original one. Only limited literature has been published on Geography building plans and models worthy of imitation are either rare or nonexistent. Where can one visit a model Geography Department?

In drawing blueprints for a Geography Department, many problems arise. Some of the major ones are:

1. What is an ideal classroom? What equipment should be included and how should it be arranged?
2. What should be included in a workable laboratory?
3. How can maps be stored efficiently?
4. What type of staff offices should be planned?
5. What about a display area?
6. Should a dark room be included?
7. How should a room be equipped for the use of visual aids such as: television, radio, movies, and slides.

I am of the opinion that blueprints for a Geography Department are like house plans, there is a different one for every campus. However, much can be learned from others.

I would like to suggest two plans:

1. That geographers formulate their ideas concerning blueprints for a Geography Department. These need not be complete blueprints and could cover only one phase. These expressions could, for example, be submitted to The Professional Geographer. If the response warrants it, why not have a portion of an issue devoted to Geography blueprints?
2. Or, a committee could be selected by the Association of American Geographers to study the problem and integrate the ideas of geographers on this subject and prepare these facts for publication.

Some departments are being faced with this problem now and others will be in the future. We should have a reservoir of ideas from which all could profit when confronted with the problem of drawing plans for a Geography Department.

---Joseph G. Bradac
Central Michigan College

REGIONAL DIVISIONS

East Lakes Division

The Spring Meetings of the East Lakes Division of the Association of American Geographers were held on March 21 and 22 at Ann Arbor, Michigan. The Meetings were in conjunction with the geography section of the Michigan Academy of Science, Arts and Letters.

The Division banquet was held on Friday evening, with George Kish of the University of Michigan delivering an address on his impressions of the Soviet Union. The address was followed by a Business Meeting at which William Brueckheimer, 1957-58 chairman, presided. Ross Pearson of the University of Michigan was in charge of local arrangements for the Meetings.

The officers elected for the 1958-59 year are John Frazer Hart, of Indiana University, Chairman and Robert Sinclair, Wayne State University, Secretary-Treasurer. The Division's fall Meetings will be held in Bloomington, Indiana, with Indiana University as host.

THE NATURE OF GEOGRAPHY

RICHARD HARTSHORNE

Published by
The Association of American Geographers
Fifth Printing

Copies may be obtained from the Central Office of the AAG, The Library of Congress, Washington 25, D.C. The price is $2.00 *plus* 20¢ for handling in the United States, *or* 25¢ for handling in other countries. In order to aid students, as in the past, this volume is sold at cost, with no royalties to the author.

ANNOUNCEMENTS AND REPORTS

OAS Fellowship Program

The Organization of American States is beginning a new fellowship program and will offer grants for advanced study or research to specialists throughout the Western Hemisphere. Qualified persons looking for an opportunity to do pure research, or enroll in an advanced technical course may apply now to the program. Inquiries and requests for necessary forms should be addressed to: Technical Secretary, OAS Fellowship Program, Pan American Union, Washington 6, D. C.

Applicants will be screened by the OAS General Secretariat for technical or professional competence. Awards will be made by the Secretary General of the OAS, taking into account the preferences of member states according to the fields of their most urgent needs, as well as the merits of each candidate. The program for 1958-59 will be about 170 fellowships, and in the future there will be a minimum of 500 annually. Grants will be made for periods ranging from three months to two years, covering such items as travel, registration and tuition fees, study and work materials, and room and board.

Books for Asian Students

The Asian Foundation, a non-profit, non-political organization founded by private American citizens, supports individuals and groups in Asia who are working for the attainment of peace, independence, personal liberty and social progress. The Foundation maintains eighteen offices in Asia which encourage and strengthen these individuals and groups in their work.

In the past two and one-half years the Foundation's special project Books for Asian Students has sent 600,000 selected books to more than 1,200 universities, colleges, libraries and civic groups in Asia. These books were donated by 700 university and college groups, publishers, libraries and individuals in the United States. The great need for books continues as evidenced by increasing requests.

Your contributions of books and journals will be greatly appreciated. Items in every category on the university and college level, in good condition, published in 1948 or after, and works by standard authors regardless of date, can be sent directly to:

Books For Asian Students
21 Drumm Street
San Francisco 11, Calif.

Transportation costs from the donor to San Francisco and thence to Asia will be borne by the Foundation for substantial shipments. Further

information for such contributions may be had by writing to the address given above.

Philadelphia Field Trip

The Philadelphia City Planning Commission and the Citizens' Council on City Planning have arranged a walking trip through the central part of the city. On May 23, 1958 guides will conduct small groups through the area, leaving at 9:30 a.m. from the Sheraton Hotel. Lunch and brief slide talks will be held at Bookbinders. For information and reservations contact Edmund N. Bacon, Executive Director, Philadelphia City Planning Commission, Penn Square Building, Philadelphia 7, Pa.

1960 International Geographical Congress

The first circular on the XIX Congress of the IGU appears in the IGU Newsletter, Vol. IX, No. 1, January 1958. The Congress will be held in Stockholm, August 6 to 13, 1960. There will be excursions before and after the meetings. To aid in planning the Congress, it is requested that preliminary applications be sent to the Organizing Committee by September 1, 1958. An application form is included in the circular, and additional copies may be obtained from: U.S.A. National Committee, IGU, National Academy of Sciences-National Research Council, 2101 Constitution Avenue, Washington 25, D.C.

Summer Tour of Mexico

William G. Bryon of Los Angeles State College is leading a tour of Mexico, leaving Los Angeles August 22 and returning September 6. The price is $308. Reservations are now being accepted by Dr. Byron who should be contacted for additional information on the details of the tour.

NSF Research Proposals

The next closing date for receipt of proposals in the Social Science Research Program of the National Science Foundation is October 1, 1958. Proposals received by that date will be evaluated in the fall. Approved grants will be activated in time for work to begin in the second semester or the summer of 1959.

The Social Science Research Program supports basic research in anthropology, archaeology, demography, human ecology, economic and social geography, economics, social psychology, sociology, and the history and philosophy of science.

Proposals received after October 1, 1958, will be reviewed following

the winter closing date of February 1, 1959, with activation of approved grants in the summer and fall of 1959. Inquiries should be addressed to National Science Foundation, Washington 25, D.C.

William Julius Berry died on April 4, 1958, at his home in Kalamazoo, Michigan. He was head of the Department of Geography and Geology at Western Michigan University where he had been on the staff since 1930. Dr. Berry graduated from Iowa State Teachers College in 1921, and did his graduate work at the University of Chicago where he was awarded the M.A. in 1926 and the Ph.D. in 1938. Before going to Western Michigan, he had taught at Iowa State Teachers College, North West Louisiana State College, the University of North Dakota and the University of California, Los Angeles. Dr. Berry had specialized in the regional geography of South America and had recently authored the chapter on South America in the new McGraw-Hill book World Geography. He also had written articles and prepared maps for the Encyclopedia Britannica.

NEWS FROM GEOGRAPHIC CENTERS

University of Minnesota

Among the thirteen graduate students in residence at the University of Minnesota during the fall and winter, three held substantial fellowships, and a fourth was granted an award for field work beginning in the spring. Henry Dixon Smith and Robert C. Lucas are Fellows of the Danforth Foundation. John M. Crowley, a recent transfer to geography from agronomy, holds a National Science Foundation fellowship. Miss Marion W. Solly received a grant from the Carnegie Corporation for a year of field work in Malaya in connection with her doctoral dissertation. In addition, Roland E. Chardon, who is on the staff at the University of Iowa, was awarded a National Academy of Sciences-National Research Council Foreign Field Study grant for a year of doctoral field work in Yucatan. Both doctoral field studies are under the direction of J. O. M. Broek. Amounts of the grants and fellowships vary, with the average above four thousand dollars per year.

Wayne State University

On December 12, the Wayne State University Geography Department officially opened its new quarters, which have been built according to the specifications of Bert Hudgins, former chairman of the department. The occasion was marked by the visit of Chauncy D. Harris, who spent the day with students and staff and delivered an evening lecture to a capacity audience on "Education in the Soviet Union." The department was pleased to welcome geographers from throughout SE Michigan at the dedication.

As well as the change in quarters, there has been a great change in staff membership in the last two years. The two members who had participated in the department's early development, were lost to the department in the spring of 1957. Bert Hudgins, chairman since 1925, retired. Floyd A. Stilgenbauer, who had been with the department since 1927, passed away on April 9, 1957.

The staff now comprises six full-time members. Fred E. Dohrs assumed the chairmanship on Hudgins' retirement. He is on sabbatical leave in Austria, doing research on industrial location. He plans to do considerable traveling in Eastern Europe and the Soviet Union. In the fall, he will be geopolitical advisor to the Naval War College in Newport, Rhode Island.

Robert J. Goodman is Acting Chairman of the department during the current year. He recently received a $1,000 grant to further his work in visual education and is doing a study on crop acreage trends in the Thumb area of Michigan. He has organized two European travel groups for this

summer and personally conducted a field trip to Puerto Rico during the Easter vacation.

Two new members came to the department in the fall of 1956. Robert Sinclair joined the department after a year in Kansas, working on the Kansas Basin Project. He spent three months last summer traveling in the Balkans and the Middle East. Robert O. Johnsrud came to the department from the University of Wisconsin, where he has recently completed his Ph.D. dissertation on "Areal Relationships in the Functioning of Wisconsin State Government." He is presently doing research on the functioning of the Detroit-Windsor Boundary.

The two most recent additions to the staff came in the fall of 1957. Ralph R. Krueger is a Canadian, and is currently completing his Ph.D. degree at Indiana University. He has received a $1,400 Social Science Research Council Fellowship to complete dissertation research on the topic "Competition for Use of Land in the Niagara Fruit Belt of Ontario." Robert E. Nunley is completing his Ph.D. degree at the University of Michigan. He came to Wayne after spending eight months in Costa Rica doing field work for his dissertation "Population Distribution of Costa Rica."

At present, the department has 26 undergraduate majors and 15 graduate students. Two $1,800 teaching Assistantships are now offered to Masters' candidates. A complete revision in the course curriculum has been made this year and the program of urban and industrial work has been strengthened. The department is fortunate, in this respect, in having the part-time services of Wilbur Zelinsky and George Honzatko, geographers with the Chesapeake & Ohio Railway Co. and the Detroit Metropolitan Regional Planning Commission, respectively. Another feature of the revision is an introductory physical geography course, designed specifically for majors and offered in addition to the regular introductory "Principles of Geography" course.

During the last three semesters, the department has participated actively in Channel 56, the Detroit Region Education Television network. Fred Dohrs, Robert Goodman and Robert Sinclair have each given a series of programs and Robert Nunley has participated in several of them. A credit course in world regional geography is now being given by Robert O. Johnsrud over the university radio station. Extension work in two centers is being handled for the College of Education by recent graduates of the department.

The Wayne State geography field course will be held this summer in Yellow Springs, Ohio. The five-week course, beginning August 9, will be on the graduate level, although several undergraduate majors will be enrolled. Robert Sinclair will conduct the course, with the cooperation of John Lounsbury of Antioch College, Ohio. About ten Wayne students and four Antioch students will participate in the course.

University of Oregon

The Department of Geography and Geology is being divided as of July 1, 1958. Samuel N. Dicken will continue as Head of the Geography Department and Lloyd Staples will become Head of the Geology Department.

The Geography staff next year will include Assistant Professors Forrest Pitts, Gene Martin, and Associate Professor Clyde Patton. Assistant Professor James Stovall has cast his lot with the geologists but will continue one-fourth time in geography for the coming year.

Clyde Patton will take up his duties here in September 1958. He holds a Ph.D. from University of California at Berkeley and has been at Syracuse University as Assistant Professor for the last five years.

A 64-page booklet with color photographs, entitled "The Pacific Northwest," by Professor Dicken, has just been published by Nelson Doubleday, Inc., in the "Know Your America Program."

Professors Dicken and Martin will teach summer school in Eugene. Dr. Pitts has three papers in the mill, "Japanese and American World-Views and Their Landscapes," "The Analysis of Geographic Problems," (with W. L. Garrison) and "Proposals to Develop Statistical Laws of Human Geography," (with Stuart C. Dodd).

University of Chicago

An African University Project for the exchange of academic personnel between the University of Chicago - UCLA and African university colleges south of the Sahara has been established with a grant of $245,000 from the Ford Foundation. It calls for the exchange of seven professors (at least three from each direction) and four advanced graduate students annually for a period of three years, the first exchange to take place in 1958-59. The Director of the Program, Edwin S. Munger, is in Africa during 1958 for his sixth year of field research as American Universities Field Staff correspondent, and by the end of June he will have visited each of the African institutions concerned. The ultimate aim of the program is to help the African universities prepare for their role in the growing participation of the indigenous peoples in the economic and political life of the African countries.

Research on underdeveloped regions, directed by Norton S. Ginsburg and Gilbert F. White, and supported by the Ford Foundation, is going forward. The work is in the compiling and mapping stage. A small interdisciplinary seminar will be held to gather suggestions from non-geographers concerning additional indicators of economic development which might be mapped on a world basis. Papers will be presented by a political scientist, a sociologist, two economists, and an anthropologist.

The United Nations panel of experts set up in 1956 to investigate the problems of integrated river basin development, and headed by Gilbert F. White, has completed its assigned task. Its report, published early in

1958, describes the challenge presented by the orderly development of the river basins of the world and the lines along which the panel believed the UN and its specialized agencies might suitably move in dealing with the challenge.

Philip L. Wagner spent last winter in Chiapas, Mexico, continuing work on the interdisciplinary field research problem which was initiated in the autumn of 1956 under the direction of the University of Chicago Department of Anthropology. During this, the second field season, he was assisted by two graduate students in geography, Winifred Vanderwalker and Melvin G. Marcus. Field research was concerned with the distribution, horizontal and vertical, of vegetation and land-use types. The project, sponsored by the National Science Foundation, is scheduled to terminate next year. In the meantime, other field studies concerned with social anthropology, archaeology, botany, economics, and linguistics will be continued by experts in these fields.

Academician V. V. Zvonkov, Chairman of the Council on Problems of the Water Economy of the USSR Academy of Sciences, visited the Department in November and December 1957. He gave addresses on integrated utilization of Soviet water resources and on principles of integrated transport development in the USSR. The latter paper will be published by the Department.

Robert S. Platt, now in his first year as Professor Emeritus, is presenting a course in "Geographic Thought." He returned in mid-March from five weeks of field research in Mexico, where he studied resettlement in the area of the volcano Paricutin. He also visited Magdalena Atlipac to observe changes since he made a detailed study of the village 30 years ago.

Changes in the personnel of the Department for 1958-59 include two promotions and two new appointments. Wesley Calef and Harold M. Mayer have been promoted to the rank of full professor; Brian J. Berry of the University of Washington, whose specialty is economic geography, comes to the Department as Assistant Professor; Marvin Mikesell, Ph.D. candidate at the University of California (Berkeley) with dissertation on the geography of Morocco, has accepted appointment as Instructor.

Francis Murphy of the U. S. Corps of Engineers, has been in residence during the current academic year, working under Gilbert F. White's direction on the regulation, by public agencies, on land use on flood plains. A considerable proportion of his time has been spent in field research. Ann Larimore, Instructor in the Department during 1957-58, has been awarded a post-doctoral fellowship by the Social Science Research Council for the year 1958-59. The purpose of the grant is to provide opportunity for a training program in "devising methodology for field investigation of man's relationship to his habitat." Her plans include a study period in Great Britain and field work in British East Africa. Baruch Boxer, who has been in the Far East during 1957-58 on an Inter-University Fellowship for Field Training in Chinese, has been awarded a Ford Foundation Fellowship for further study in the Far East. He plans to work in Hong Kong.

Robert H. Sharkey presented a paper entitled "Land Use and Trip Generation in the Chicago Area: Some Preliminary Findings" before the March 18, 1958 meeting of the Chicago Region Chapter of the American Institute of Planners. The paper was published as Professional Paper Supplement to the April 1958 issue of the Chicago Chapter's Reporter and Review. Mr. Sharkey is land use analyst with the Chicago Area Transportation Study. This body, sponsored by Chicago, Cook County, and the state of Illinois, in cooperation with the U. S. Bureau of Public Roads, is charged with the task of discovering basic principles and usable techniques which will make possible the solution of the serious transportation problems now threatening to choke the metropolitan area.

Johns Hopkins University

The rebuilding of the department of geography at Johns Hopkins, depleted by the resignation of D. H. K. Lee, and the retirement and death of R. L. Pendleton, and the not too distant retirement of E. F. Penrose has been begun with the appointment of M. G. Wolman. This appointment followed a survey by a faculty committee which decided that the general direction of development of the department should be in the direction of the systematic physical science side of the field of geography with possible developments in the field of conservation. M. G. Wolman did his undergraduate work at Hopkins in geology. He then went to Harvard for his Ph.D., also in geology, but with emphasis on the broad area lying between geography and geology so well represented by the work of the late Kirk Bryan of Harvard. Since receiving his degree Dr. Wolman has been with the U.S. Geological Survey, where his research work has centered on the problems of stream work.

As of June 30 Dr. Wolman will take over the chairmanship of the department and direct its future growth with emphasis on the physical systematic science side of geography. George F. Carter continues with his work on human geography. Dr. Penrose on leave in Iraq for this academic year and the next, will on his return continue with his work in economic geography and international relations. Further appointments will be made within a year.

PERSONAL NEWS

H. Bowman Hawkes, University of Utah, has returned from a year as a Fulbright lecturer in Germany. After several months at the Free University of Berlin, he was asked to become the first Fulbright appointee to the University of the Saarland, and completed his term at that school.

Campbell W. Pennington, formerly of Georgia State College, is now Assistant Professor of Geography at the University of Utah.

Donald W. Meinig is on leave from the University of Utah, March-December 1958 to become a Fulbright research scholar at the University of Adelaide, South Australia.

Charles M. Davis of the University of Michigan has been appointed to the newly-formed Academy Library Advisory Group for the U.S. Air Force Academy at Lowry Field. He is one of five members who will review the Academy Library operations and recommend long-range policies and programs.

Leroy O. Myers of West Virginia University was one of five to be awarded a Sears Roebuck Fellowship in urban planning and urban renewal during 1957. He has been awarded a second year grant for 1958 and will continue his work at Michigan State University.

James A. Shear, University of Kentucky, has just returned from a year in Antarctica as scientific leader at the Hallett Station. He will rejoin the geography department in June to direct the department's field camp in eastern Kentucky.

David C. Large will be Visiting Assistant Professor at Miami University, Oxford, Ohio for the academic year 1958-59.

Malcolm A. Murray will replace Professor Large at the University of Southampton, England. This is an interesting example of a private exchange program.

Paul A. Siple has been awarded the Royal Geographical Society's Patron's Medal.

Edward B. Espenshade, Jr., who has been on leave from Northwestern University for a 6½ month study of agricultural regions of India, has assumed the duties of chairman of the geography department. His work in India included study of the differences in agricultural occupance of the Ganges Valley between Delhi and Calcutta. Enroute to India he lectured at a number of universities in the Far East.

Jack R. Villmow, Ohio State University, has been awarded a travel grant, for summer 1958, by the University Advisory Committee on Grants-in-aid. The subject of investigation is "West Berlin and East Berlin, a Study in Geographic Contrasts."

NEW PUBLICATIONS

Here is Haiti. Ruth Danenhower Wilson. Philosophical Library, Inc. New York. 1957. 204 pp. illust. $3.50.

In an easy, conservational style, the author describes her ramblings around Haiti. The landscape is vividly sketched mainly as a background for her sympathetic and penetrating treatment of the cultural scene. Individuals, ranging from elite to peasant, provide the tidbits of fact and myth used to describe the history and cultural heritage of Haiti, the pattern of life, and outlook for the future. With complete candor, the author views the success and failure of Point IV and UNESCO projects, the class system, voodoo, the place of women in society and many other aspects that make up Haiti today. A brief bibliography is included.

Earth for the Layman. Mark W. Pangborn, Jr. AGI Report 2, 2nd ed. American Geological Institute. Washington, D. C. 1957. iv and 68 pp. $1.00.

For non-specialists and young people seeking a better understanding of the earth on which we live, this booklet provides a valuable and reliable guide to readable literature, particularly in geology. Two-thirds of the 1,370 references are grouped in Part I under topical headings such as "Landscape Geology," "Gold," and "Evolution of Man." There is even a section on novels to whet the appetite of the amateur earth scientist. The references in Part II are divided by states. This handy bibliography, with many of its entries annotated, should be a boon to teachers and librarians who are attempting to build the scientific interests of students. Mature scholars in other fields, and even geologists, will find this a most useful source of earth science references.

International and Interregional Economics. Seymour E. Harris. McGraw-Hill Book Co., Inc. New York. 1957. xiv and 564 pp. $7.00.

This publication, prepared for students, is designed to fill the needs in adult education programs which are not satisfied by ordinary textbooks or other types of extremely technical treatment.

Specifically, the author relates the elements of the theory of trade and money to contemporary problems and aspects of international adjustments. After a discussion and quotations from the classical and neoclassical theories (Smith, Ricardo, et. al.) of international and interregional economics, the book centers around the consequences of disequilibrium in these fields. The contributions from the classical writers present an adequate background for the discussion of integrating monetary and fiscal theory and policy, both past and present, with international economics. The final part of the book includes a study of postwar disequilibrium centered around the dollar shortage and the related issues.

Parking as a Factor in Business. Highway Research Board Special Report 11. NAS/NRC Pub. 273. Washington, D.C. 1953. $6.00.

Shopper Attitudes. Highway Research Board Special Report 11-A. NAS/NRC Pub. 273a. Washington, D.C. 1955. $2.25.

Shopping Habits and Travel Patterns. Highway Research Board Special Report 11-B. NAS/NRC Pub. 273b. Washington, D.C. 1955. $0.75.

Parking and Buying Habits of a Store's Customers. Highway Research Board Special Report 11-C. NAS/NRC Pub. 273c. Washington, D.C. 1956. $0.60.

Parking and Its Relationships to Business. Highway Research Board Special Report 11-D. NAS/NRC Pub. 273d. Washington, D.C. 1956. $0.60.

These five publications contain eight reports and a summary dealing with varied aspects of parking and business. Seven reports are the work of university faculty members, the remainder by U.S. Bureau of Public Roads officials. The findings of these detailed investigations are summarized in two key paragraphs of the conclusion:

> It has been inferred that the historical shortage of parking facilities has been primarily responsible for the surge in suburban sales. But the expanded population base, which has prompted department stores to establish suburban branches, is perhaps the most important single factor. Consequently, it appears that the changing pattern of shopping due to the increased mobility of the auto shopper has been more influential in recent retail trends than parking and traffic conditions.
>
> The importance of parking varies a great deal. A categorical generalization of the quantitative effect of parking on business is not readily possible because of the many other relevant factors. Besides, there are innumerable situations, and parking must be viewed in the proper perspective in order to determine its real effect. The most important factors influencing shoppers' travel habits are: (1) the total travel time from their home to the shopping district - the main advantage of suburban centers, and (2) the selection of goods available there - the number-one attraction downtown. These favorable attitudes far outweigh the disadvantages at either location.

This series is must reading for all students of urban and marketing geography.

---Howard L. Green

Village and Plantation Life in Northeastern Brazil. Harry W. Hutchinson. The American Ethnological Society, A Monograph from the Research and Training Program for the Study of Man in the Tropics. University of Washington Press. Seattle. 1957. ix and 199 pp. illust. $3.50.

This excellent study portrays in fine detail the life of the urban and rural segments of the small community of Vila Reconcavo, located 41 kilometers across the bay from Salvador, capital of the State of Bahia. The study is based on field research done in 1950-51 and brought up to date in 1955-56. Detailed data in the many tables reflect careful analysis of material obtained through interviews and questionnaires. Portuguese terminology used in the text is translated, and where necessary, the translation is explained. Clearly pointed up is the almost complete absence of association and communication between the urban and rural parts of the community, although they live in close proximity. Similarly within each segment, there are clearly defined class lines and little movement is found between these classes. The re-examination of the area made in 1955-56 indicates that the same trends still persist. However, with the coming of oil exploration in the community and shifting from a sugar to a cacao economy, Vila Reconcavo may be about to begin a new period of development.

In the early colonial period the urban and rural parts of Vila Reconcavo formed an active, thriving unit on the frontier of sugar plantation development. Nearness to the capital of Brazil--at that time, Salvador--gave the community an important role in the expansion of the colony. With the shift of the capital to Rio de Janeiro in 1763, and the onward movement of the frontier, Vila Reconcavo gradually lost its position of importance, until today there are few mutual interests for the two segments of the community. The urban segment, now only a local administrative center, depends primarily on the sea for its livelihood and its communication with Salvador. Likewise, plantation life has undergone a great change from the flourishing prosperity of the colonial period, until now "sugar factories" are taking over from the individual producer. Ties of the owner class to Salvador and the ties of employees to a given plantation emphasize further the separation of the rural way of living from the urban way. Class distinctions and customs of both segments are carefully defined, and the complex role that the various shades of racial mixing--white, Indian, Negro--play in that definition is clearly indicated.

The illustrative material is good. The two maps, one of the community and one of the urban center, would have been improved by greater legibility and by legends in English. Also, the addition of a map showing the relation of Vila Reconcavo to Salvador would have been useful for orientation.

---Charlotte M. Burtis

Antarctica in World Affairs. Laurence M. Gould. Headline Series, Foreign Policy Association, No. 128, March-April 1958. 54 pp. illust. $0.35.

Those who have heard Dr. Gould's lecture on the Antarctic will be pleased to find this interesting account of Antarctica in print. The narrative reads almost as easily as Dr. Gould delivers it, and a surprising amount of material is contained in the short text.

Included in the brief treatment of geography and history of exploration are ten maps which graphically illustrate the shrinking of unexplored land on the continent. These maps first appeared in the Geographical Review of January 1957. The political claims and United States interests are then outlined. The pamphlet concludes with a short statement of the IGY program in Antarctica and the prospects for the future.

---Louis O. Quam

Barley-Climate Relationships and the Use of Phenology in Ascertaining the Thermal and Photo-Thermal Requirements of Barley. M. Y. Nuttonson. American Institute of Crop Ecology. Washington, D.C. 1957. vi and 280 pp.

Rye-Climate Relationships and the Use of Phenology in Ascertaining the Thermal and Photo-Thermal Requirements of Rye. M. Y. Nuttonson. American Institute of Crop Ecology. Washington, D.C. 1958. v and 219 pp.

These volumes are part of a series of studies of crop performance characteristics and their relations to various climatic factors. Data have been collected and tabulated to show the growth characteristics of several varieties of the cereals at a number of stations in the major producing areas in the Western and Eastern Hemispheres. This phenological information is then related to the day-degree summations, the day-degrees being computed from a 40° F. base. These tables for different varieties of the cereals and for different stations in North America, the U.S.S.R., Finland, Poland, and Czechoslovakia, constitute the main part of each volume. The data are then analyzed and compared both with regard to the variety and to the geographic region or country, to note the basic relationships and to explain local differences in plant growth. Following this, the next logical step is to predict growth-development, and for this, a method is worked out in terms of cumulative day-degrees.

Statistical Abstract of Latin America for 1956. Committee on Latin American Studies. University of California, Los Angeles. 1957. 23 pp. $2.00.

This second edition of the Abstract includes more tables, more countries and more footnotes than the edition for 1955. All of the countries of Central and South America, the islands of the Caribbean, and Canada and the U. S. are included. Data are tabulated on various aspects of land use. population, health, and welfare, transportation and communication, finance and foreign trade. A tremendous amount of up-to-date information is thus organized and made available in compact and easily used form.

Five-day Normal Sea-level Pressure Charts for the Northern Hemisphere. James F. Lahey, Reid A. Bryson, and Eberhard W. Wahl. University of Wisconsin Press. Madison. 1958. 73 pp. $4.00.

Using a five-day internal, this atlas presents a more refined picture of the annual march of pressure patterns than that revealed in the standard monthly sea-level pressure charts. Information is shown for the area from 30° to 65° North and is based on the normals from the twenty best years of hemisphere coverage, 1907-13 and 1925-37. Three charts, printed side by side, are presented for each of the 73 non-overlapping five-day periods. The first chart shows the pressure values, the second chart plots the standard deviation from which may be determined the disperion of the normal values, and the third chart shows the changes in mean pressure between the period being plotted and the next five-day period.

Climate and Related Phenomena of the Eastern Andean Slopes of Central Peru. Wolfram U. Drewes and Arlene T. Drewes. Syracuse University Research Institute. Syracuse, N.Y. June 1957. viii and 85 pp. illust.

To provide additional information on mountain climates, particularly the climatic relations between a tropical lowland area and a highland area, a field study was conducted on the east slopes of the Andes. Along three profiles which ran generally from the Amazon basin (495') to the high Andes (15,000'), twelve temporary weather stations were established and operated for two months. Observations thus collected were related to long term records from local permanent weather stations. This report contains the analysis of these data and their relation to local relief, vegetation, and soil colors. The information is faithfully reported and well presented in a very readable style. Only in the brief section on slope conditions and transportation is there revealed, very modestly, some of the adventures inherent in foreign field research.

Will the Middle East Go West? Freda Utley. Henry Regnery Co. Chicago. 1957. xiii and 198 pp. $3.00.

The author's stated objective is to provide background information on the effects of the United States foreign policy with regard to the critical areas of the Middle East. She does this by a forthright, penetrating examination of Middle Eastern reactions to official acts of the United States, particularly regarding Egypt, such as the withdrawal of the loan for the Aswan Dam, the stand on Suez, support of Israel, and sale of armaments. The book opens by drawing a striking parallel between recent events in the Middle East and the various episodes that led to China's becoming a Communist country. The author then analyzes the relative positions of the USSR and the US in their competition for Middle Eastern allegiance. Particular attention is given to Nasser, his position in the Arab World and the US attitude, official and otherwise, toward him. In this connection, the background of the Suez Canal controversy is traced and documented. The author draws much of her information from recent books and newspaper articles, but relies to a great extent on her personal contacts with

Middle Easterners in her effort to present a sensitive account of the area and the times. She ends her book with an ardent plea, expressed many times in the book, for an American policy which stoutly asserts the traditional American devotion to freedom and justice. This is recommended, provocative reading for all thoughtful Americans.

A Treatise on Limnology, Volume I: Geography, Physics, and Chemistry. G. Evelyn Hutchinson. John Wiley and Sons, Inc. New York. 1957. xii and 1,015 pp. illust. $19.50.

Only G. Evelyn Hutchinson could have written this book. It is at once a perceptive critique of a vast number of papers, an encyclopedia of physical limnology, an advanced text, and an intermediate text.

After several introductory chapters on the genetic classification, origin, history and morphometry of the lake basins -- replete with interesting examples -- the author treats in detail the properties of water and the water balance of lakes. The chapters on hydromechanics, and thermal and optical properties are particularly good, for while Professor Hutchinson deals with many rather difficult problems he succeeds in keeping the topic within the grasp of a reader with only moderate mathematical ability. This, of course, is only possible through the use of unusually clear description of the physical phenomena.

The remainder of the book is devoted to the chemistry of lake water, a topic on which the author is well known for his own work.

This book is not light reading even though the non-referenced summaries at the end of each chapter may be scanned rather readily. It is, however, excellent for browsing or for serious search for source material. The surprising feature is that while this book could only be written by Dr. Hutchinson, it can be read by lesser scholars -- and this should be done by all serious students of physical geography.

---R. A. Bryson

Water for Industrial Use. United Nations. (Sale No. 58.II.B.I.). 1958. $0.50.

This report was prepared at the request of the Economic and Social Council in line with its effort to promote international cooperation with respect to over-all water resource development. The report opens with a description of the many and increasing claims on water resources in all sectors of economic life. Two chapters deal with the quantity and quality aspects of industrial water use, followed by a chapter on industrial water costs. The discussion then turns to conservation and the possible means by which industrial plants and public authorities can conserve limited water resources. The report concludes with suggestions of actions to be taken at national and international levels.